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Hess et al.

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(54) **WASTE CONTAINMENT RECEPTACLE**

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(51) **Int. Cl.**

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B65F 1/16 (2006.01)

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CPC **B65F 1/16** (2013.01); **B65D 43/262** (2013.01); **B65F 1/06** (2013.01); **B65F 1/163** (2013.01); **B65F 1/1468** (2013.01); **B65F 2001/1653** (2013.01); **B65F 2210/167** (2013.01); **B65F 2240/132** (2013.01)

(58) **Field of Classification Search**

CPC B65F 1/163; B65F 1/1623; B65F 1/16; B65F 1/06; B65F 1/1468; B65D 43/262; B65D 43/26

USPC 220/264, 263, 262, 260, 495.08, 220/495.06, 495.01, 908.1, 908, 323, 315; D34/9, 8, 7

See application file for complete search history.

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Primary Examiner — Robert J Hicks

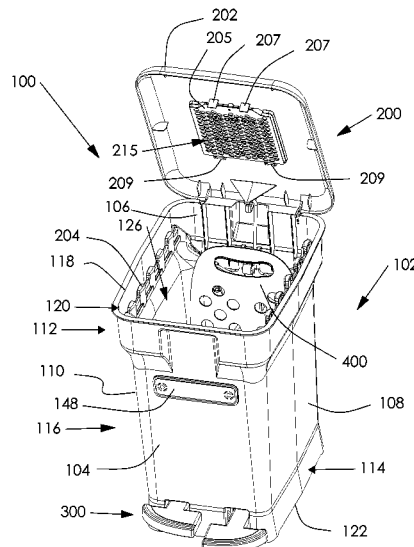
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(57)

ABSTRACT

A waste receptacle for collecting waste with a carrier that allows for easy transport. The receptacle uses a closing system to manage odor, and an actuator system to open and close the closing system. The closing system has a clamping mechanism housed inside a body that can clamp a bag placed inside the body with the opening of the bag disposed about the clamping mechanism. The receptacle may also have a lid in which actuation of the actuator system causes the clamping mechanism to open and close simultaneously with the lid. The actuation system utilizes pedals that can be replaced with a handle actuator.

18 Claims, 21 Drawing Sheets



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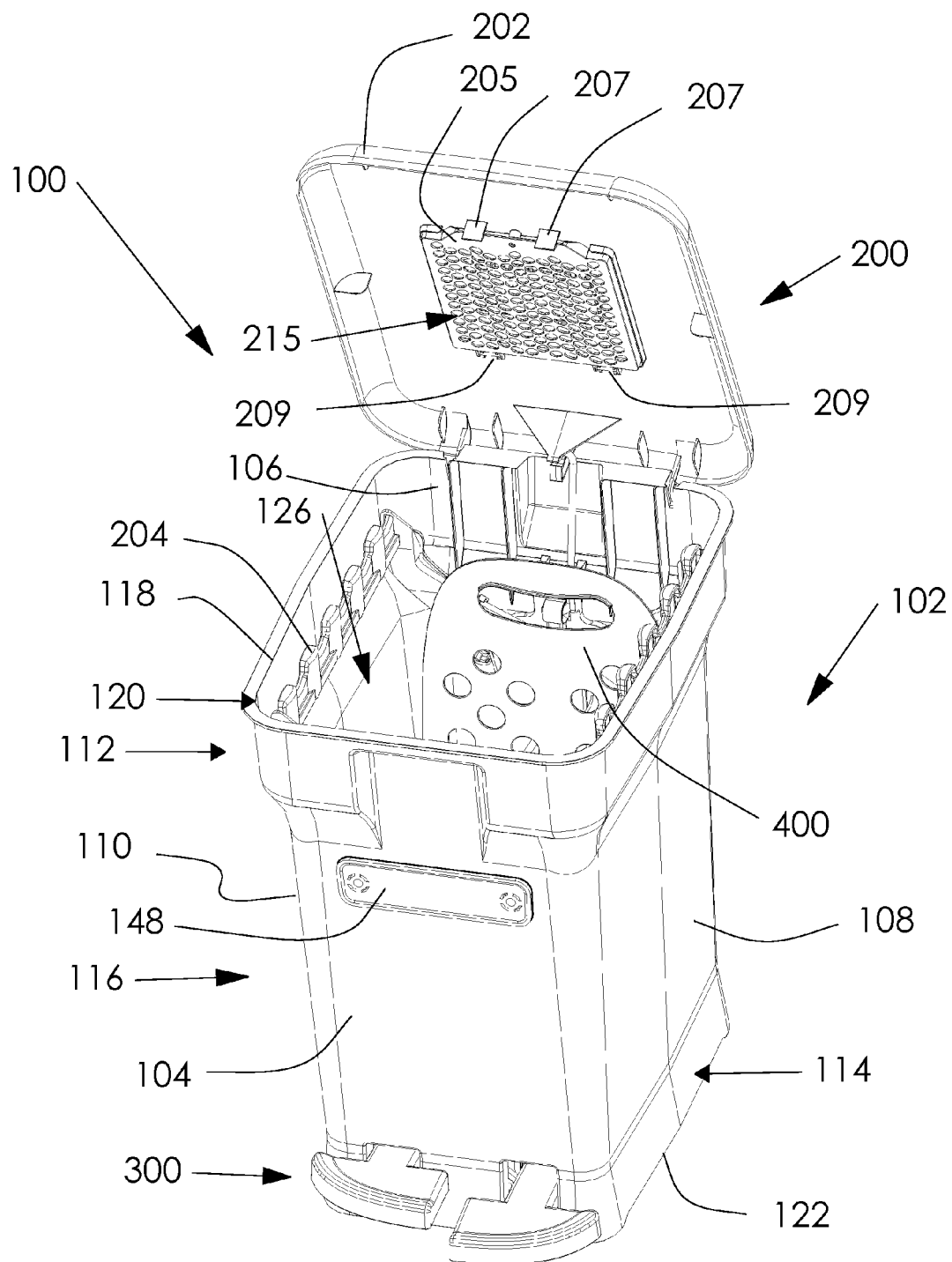


Fig. 1

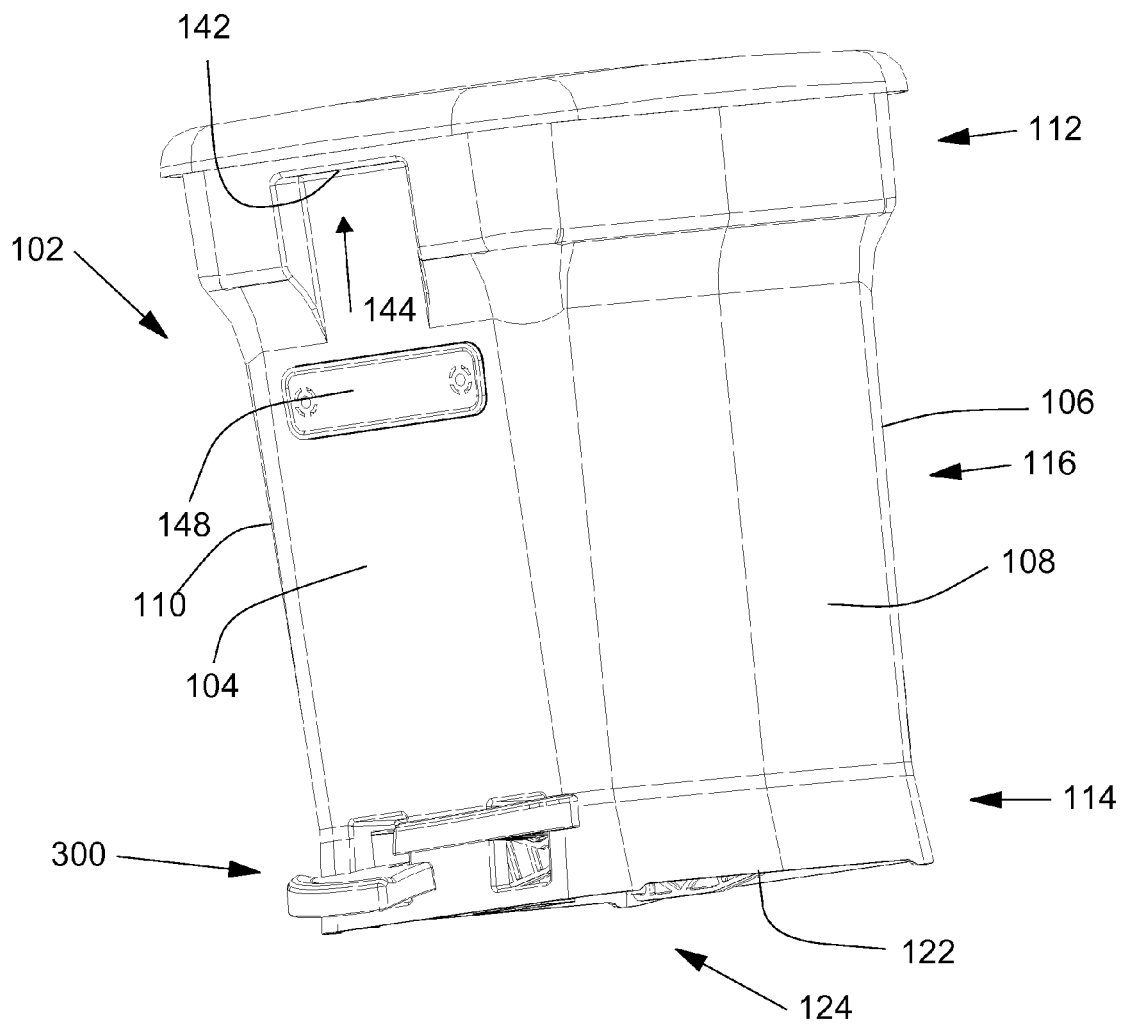


Fig. 2

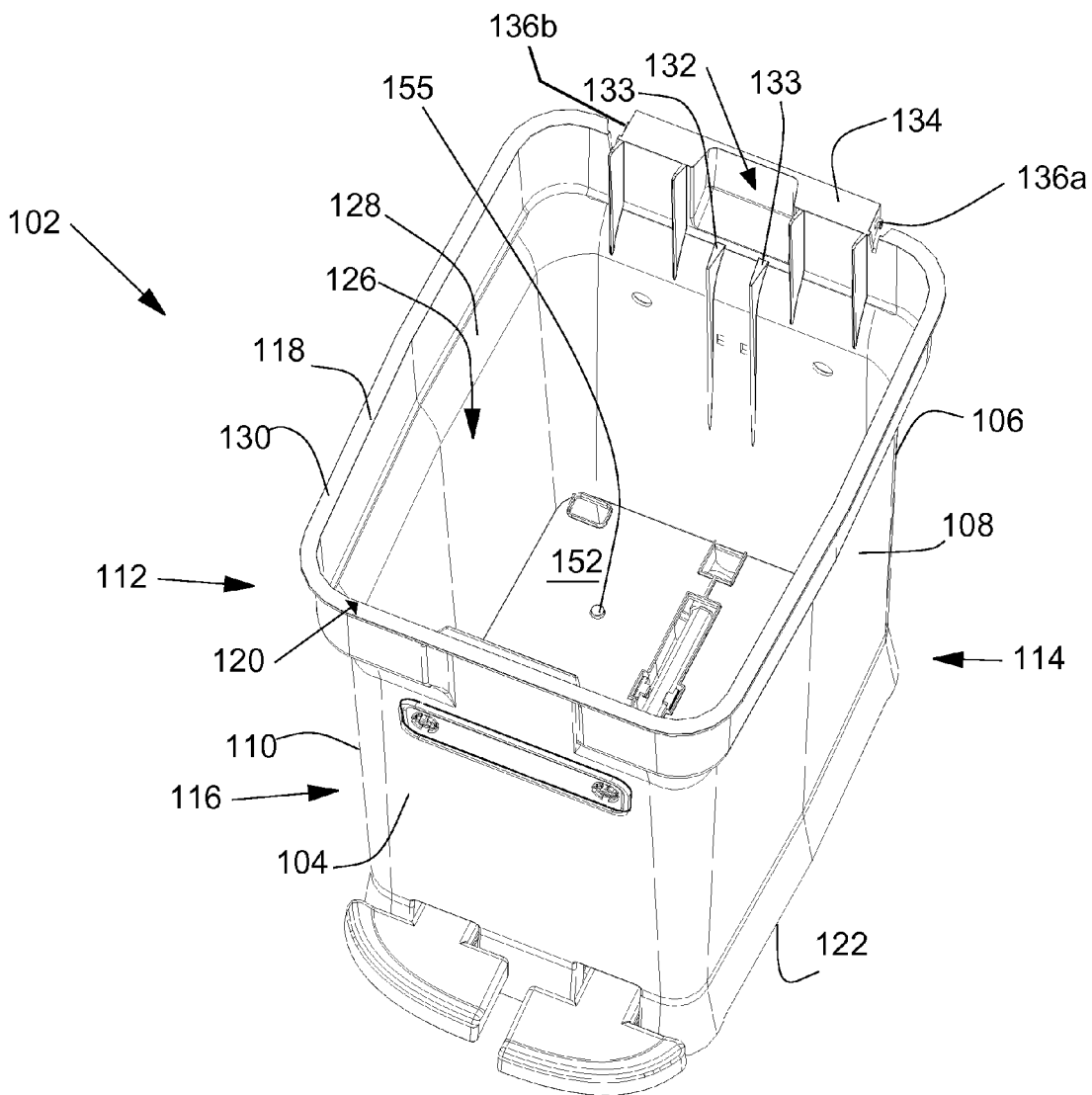


Fig. 3

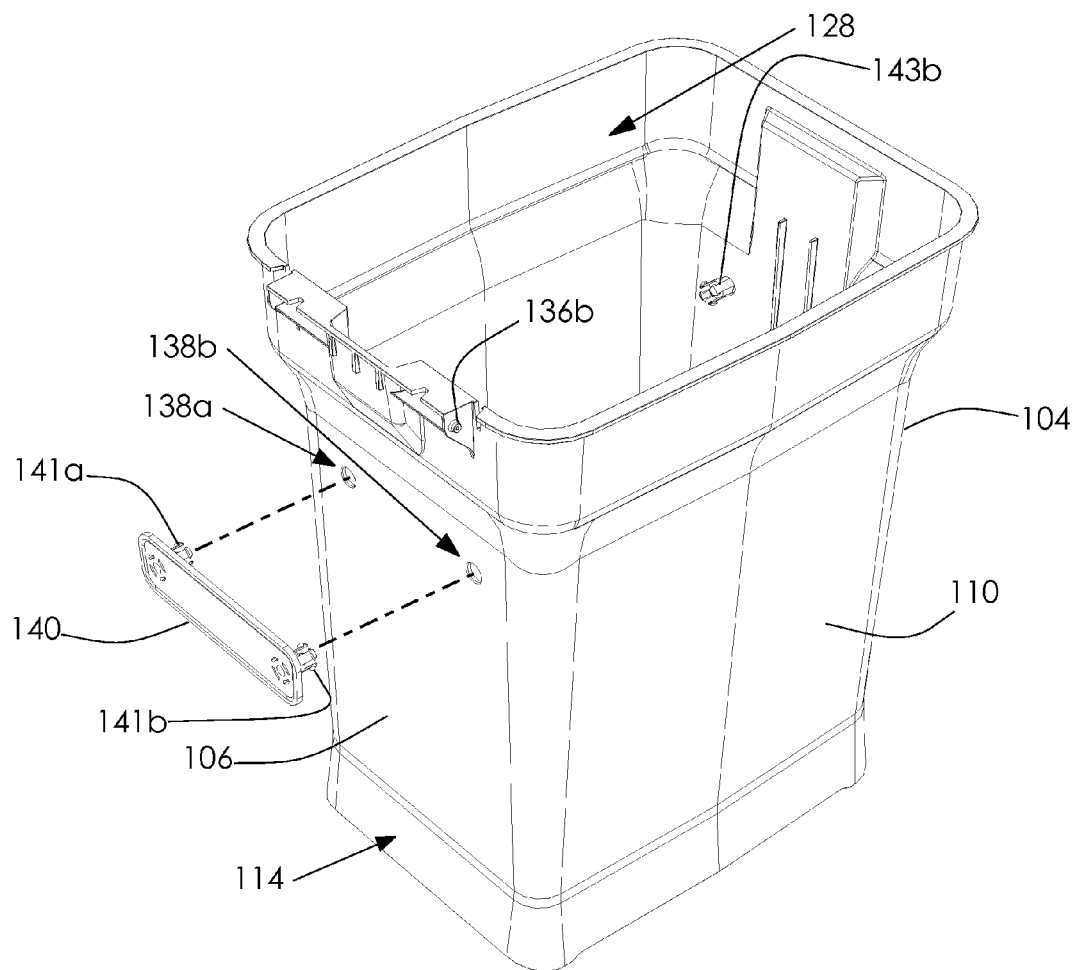


Fig. 4

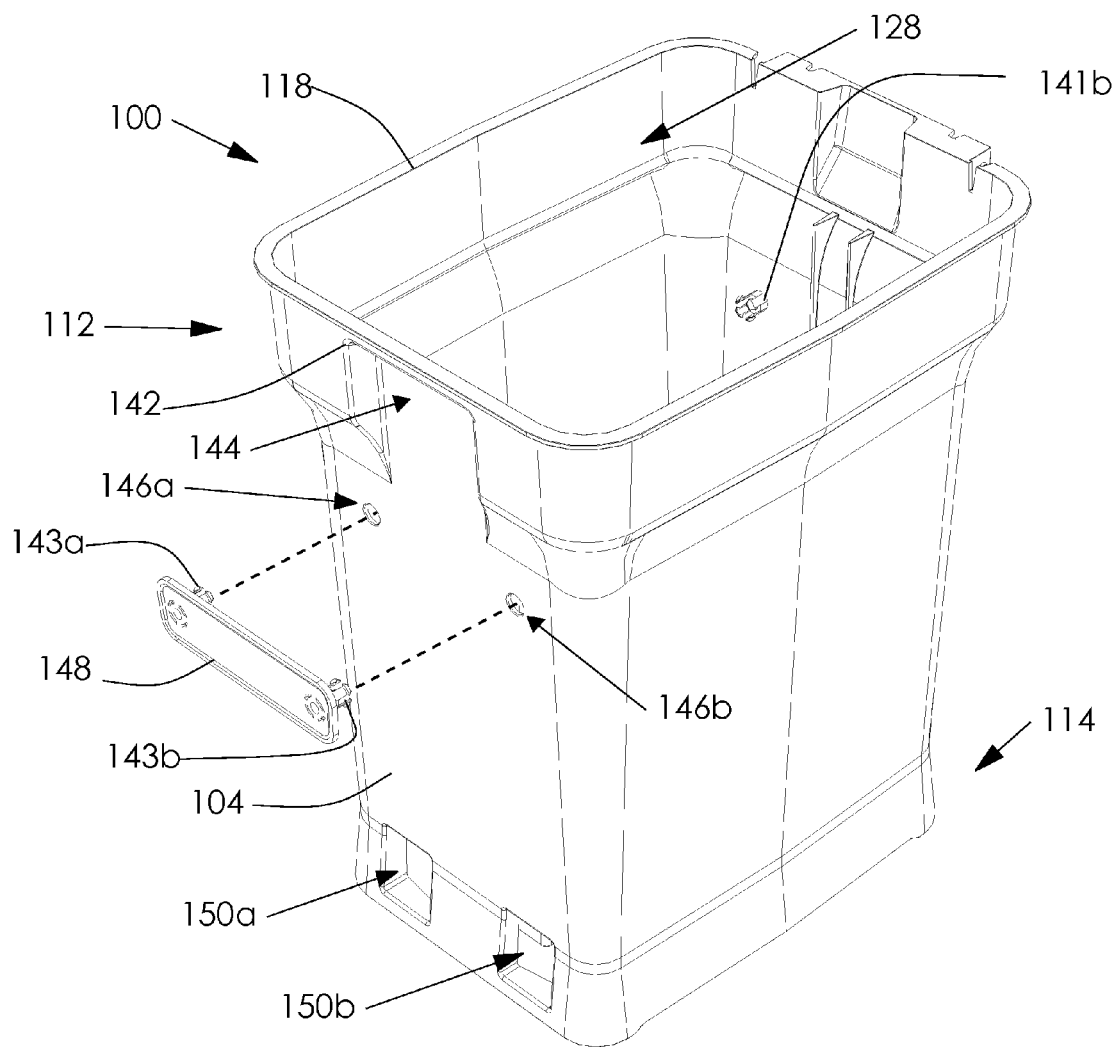


Fig. 5

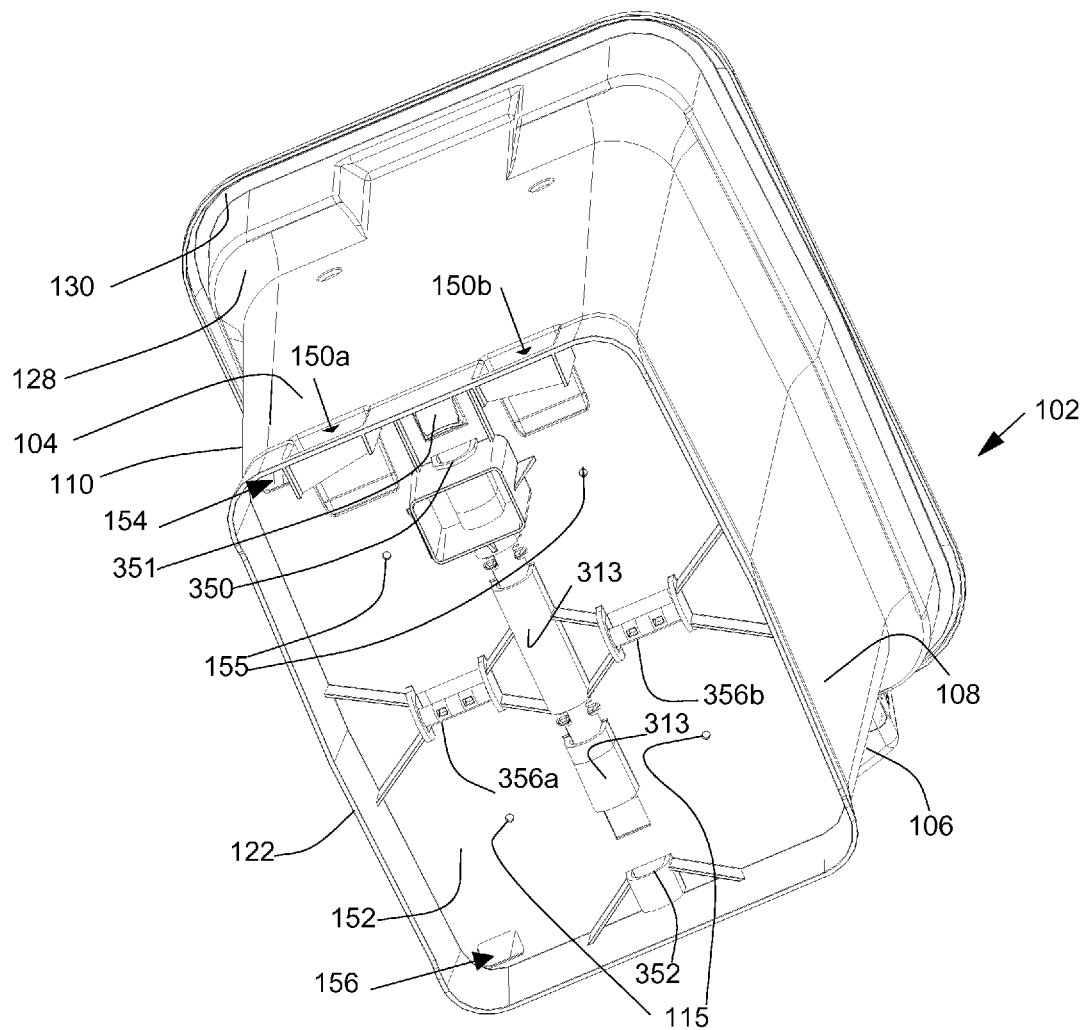


Fig. 6

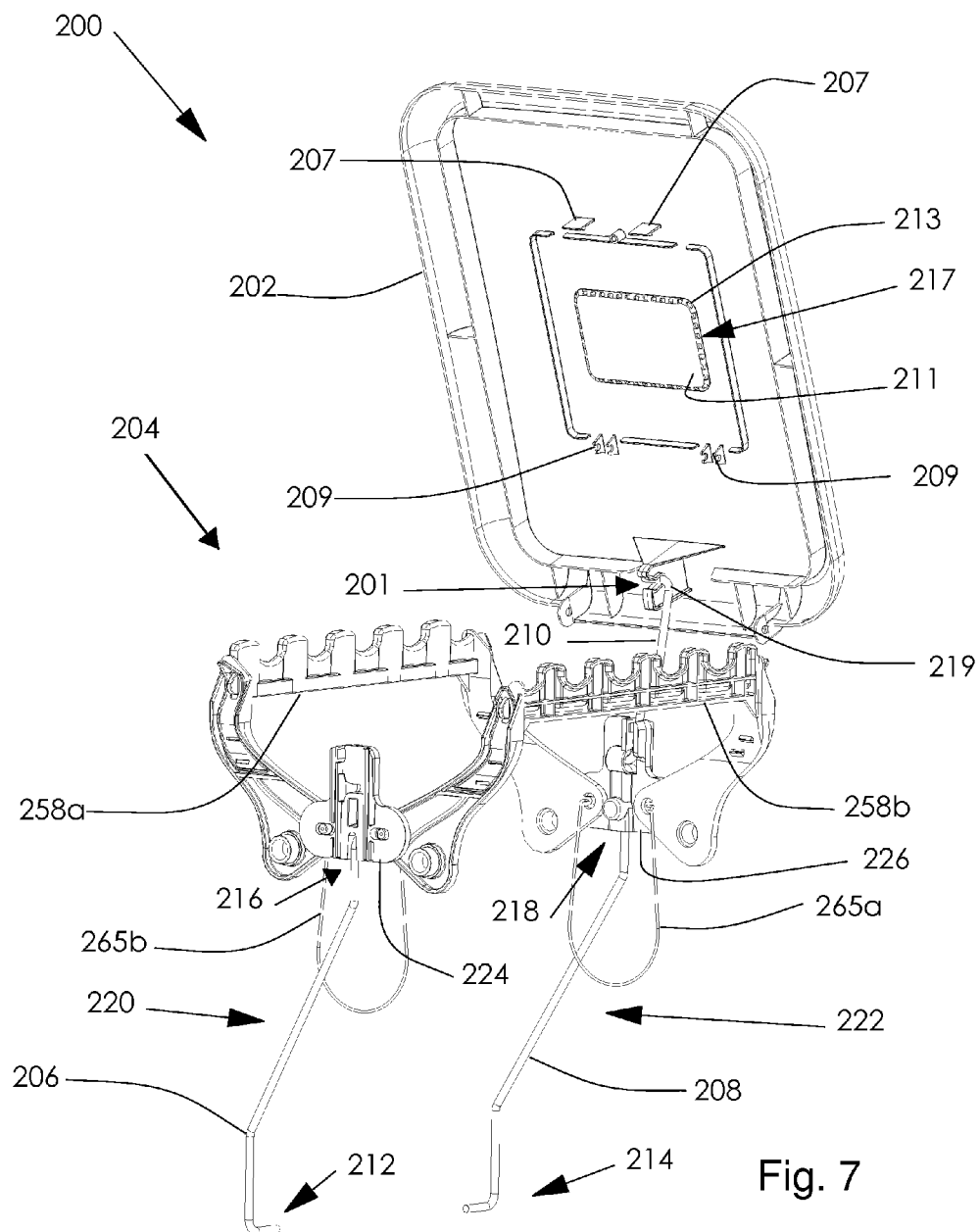


Fig. 7

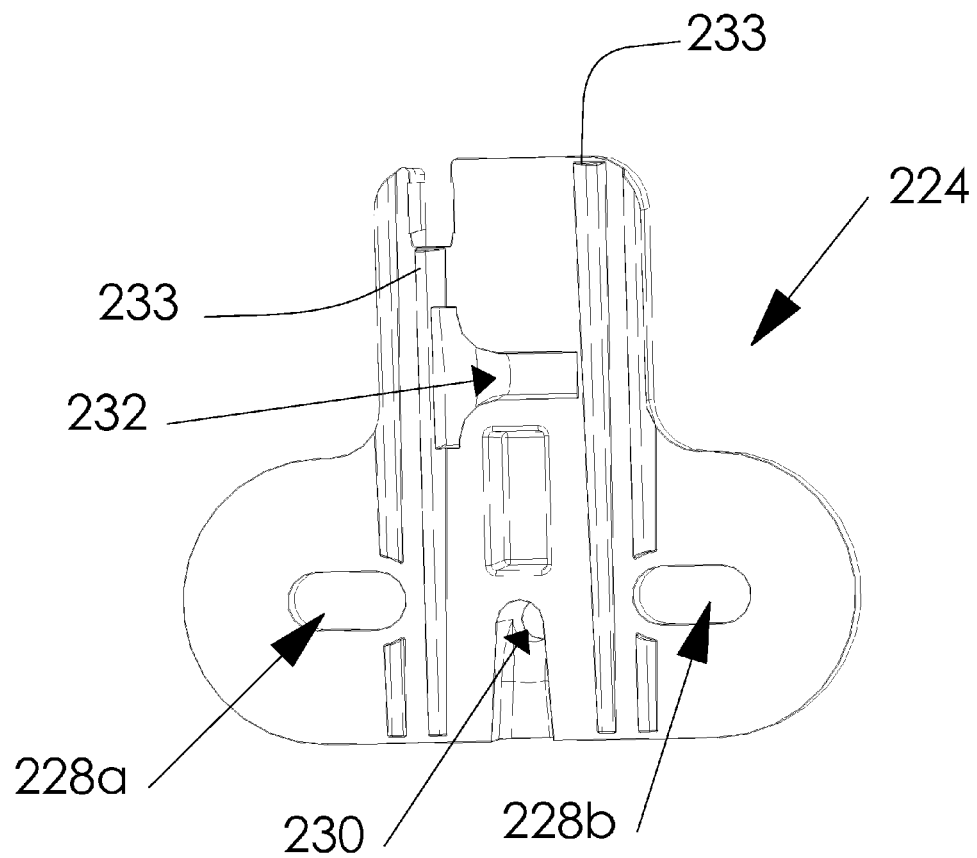


Fig. 8

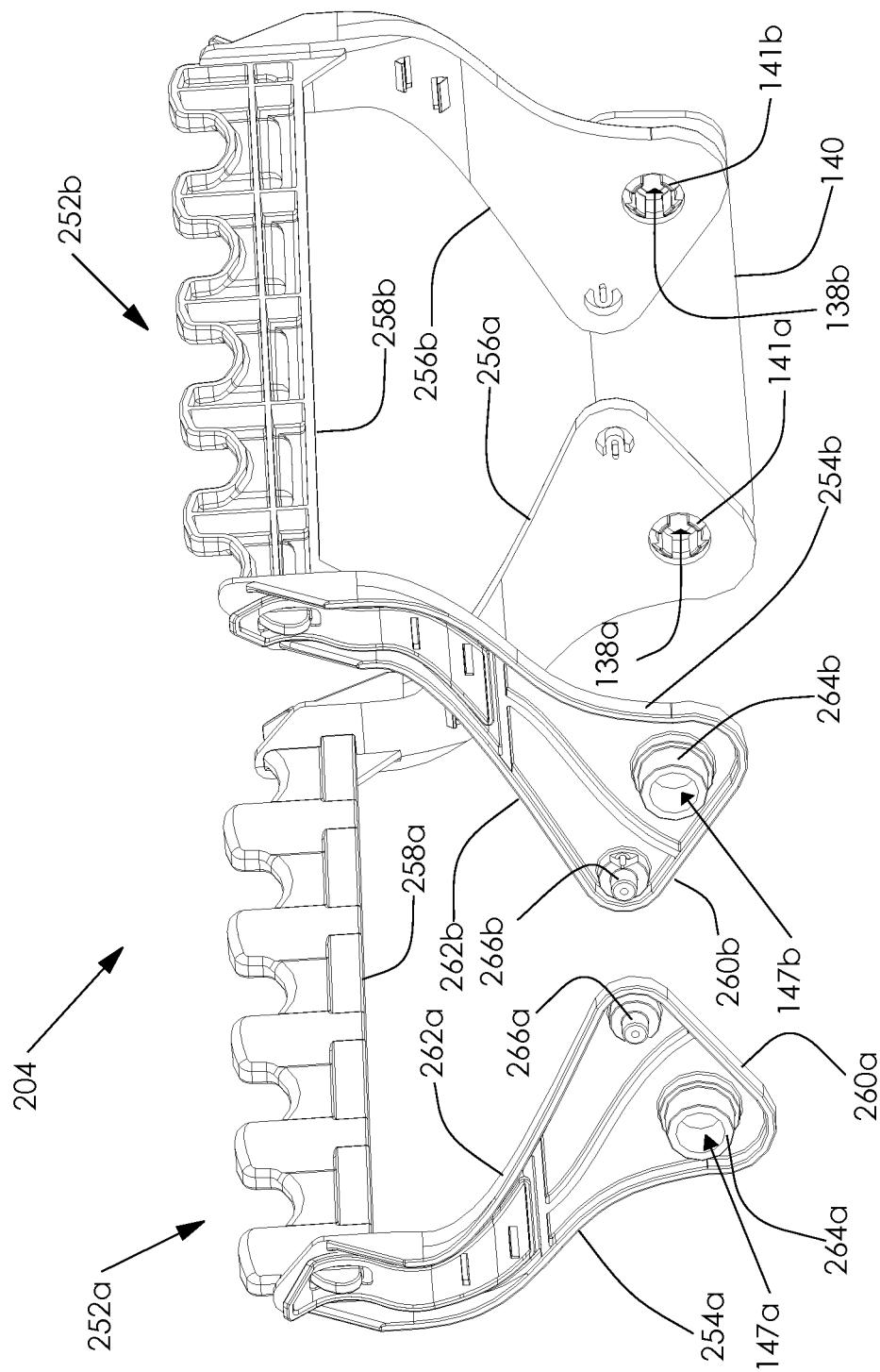


Fig. 9

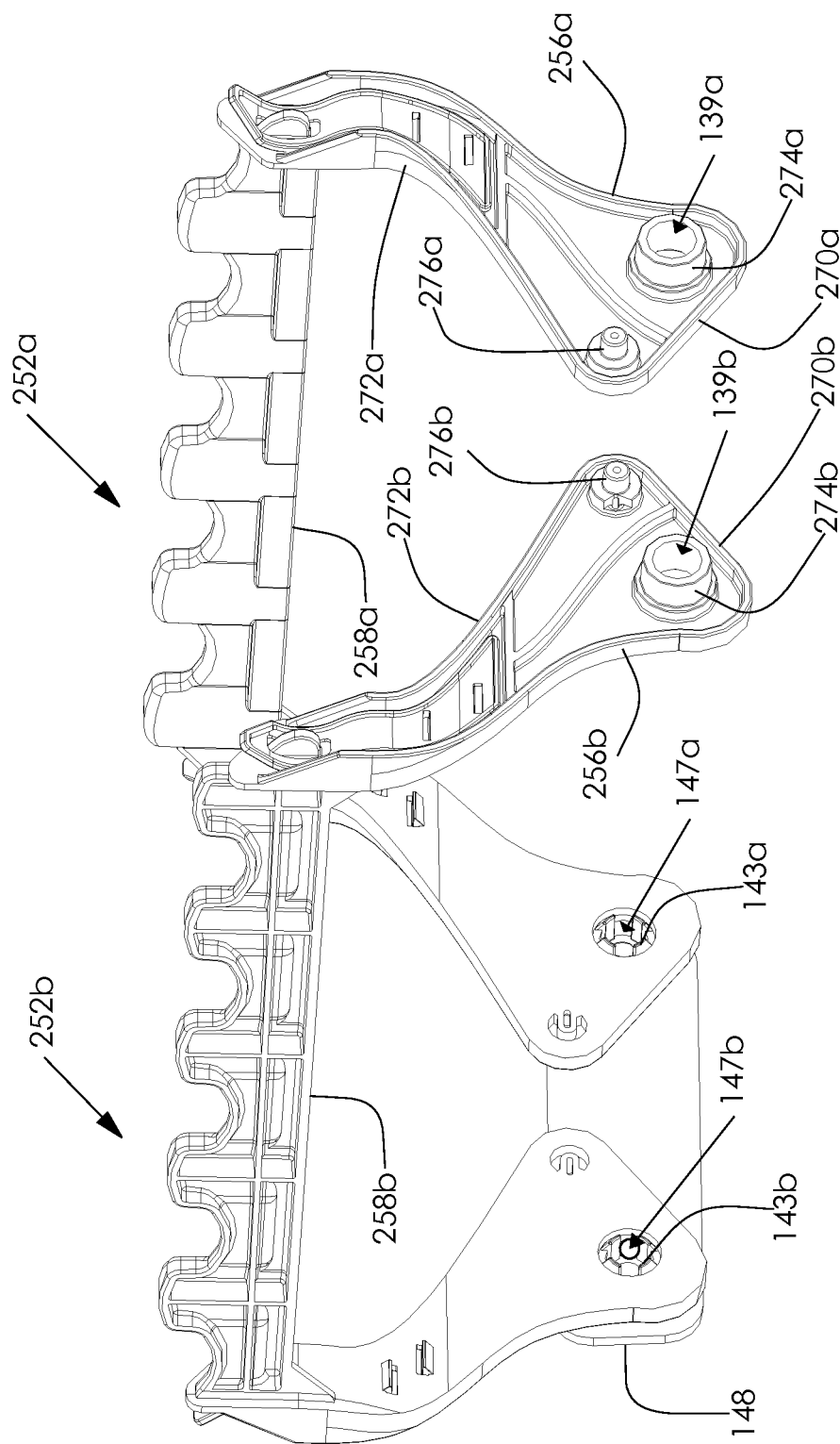


Fig. 10

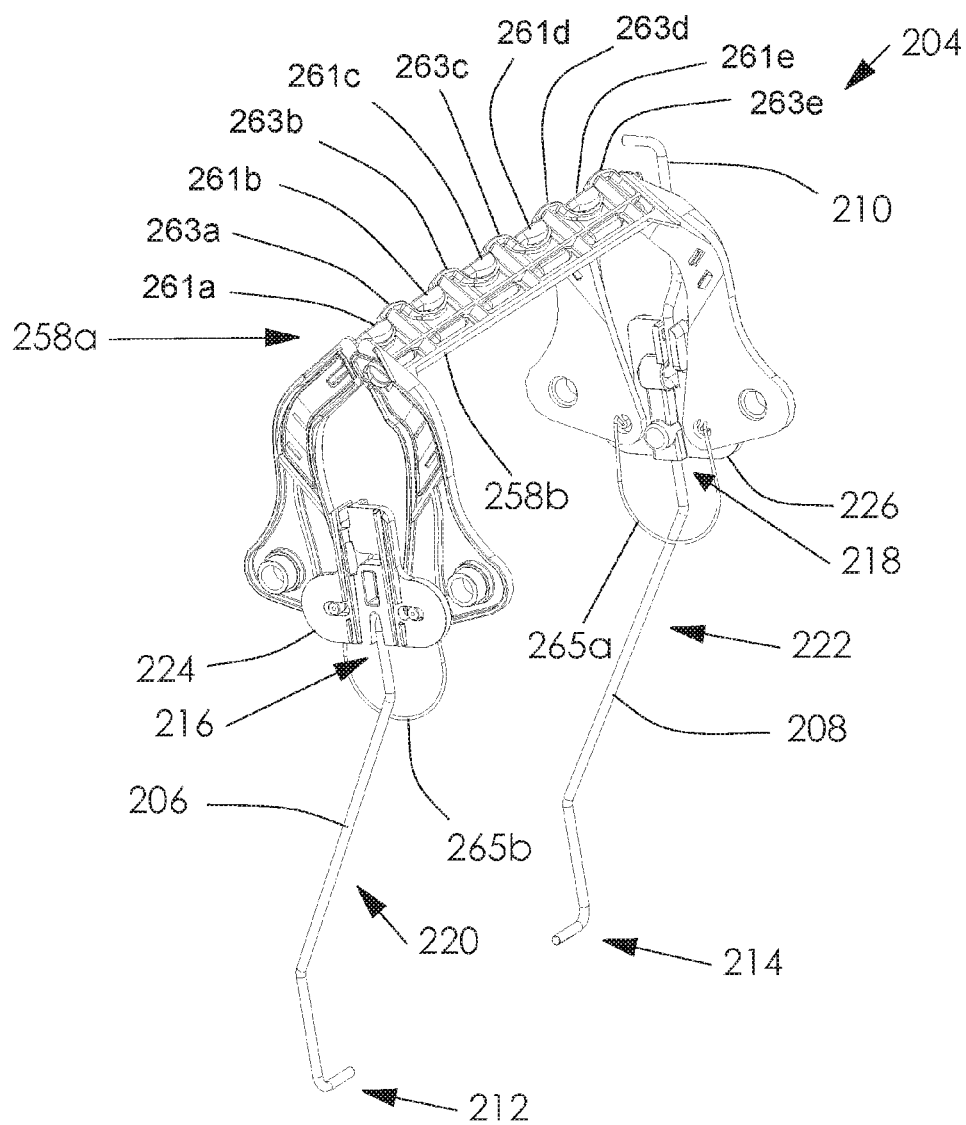


Fig. 11

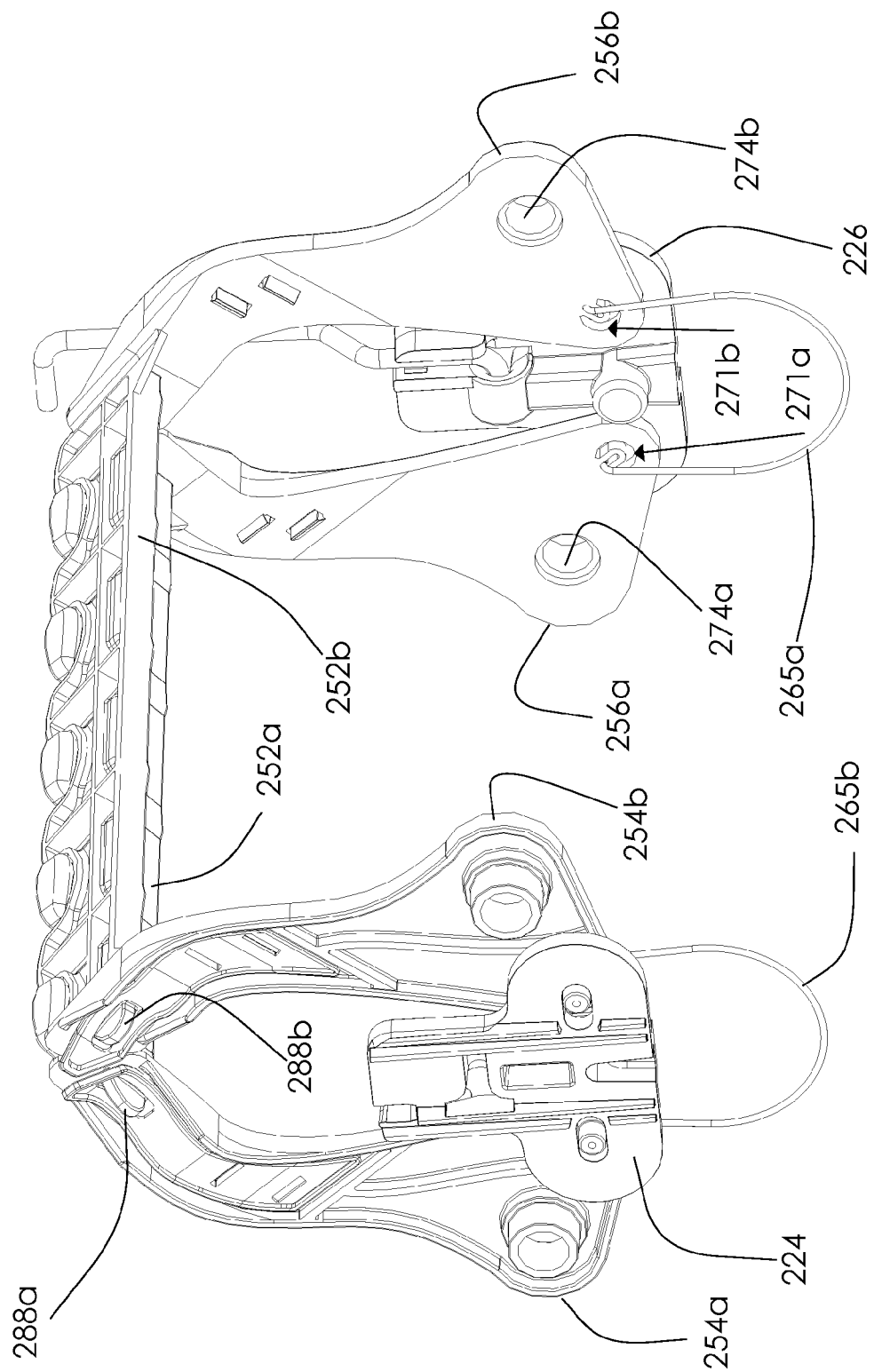


Fig. 12

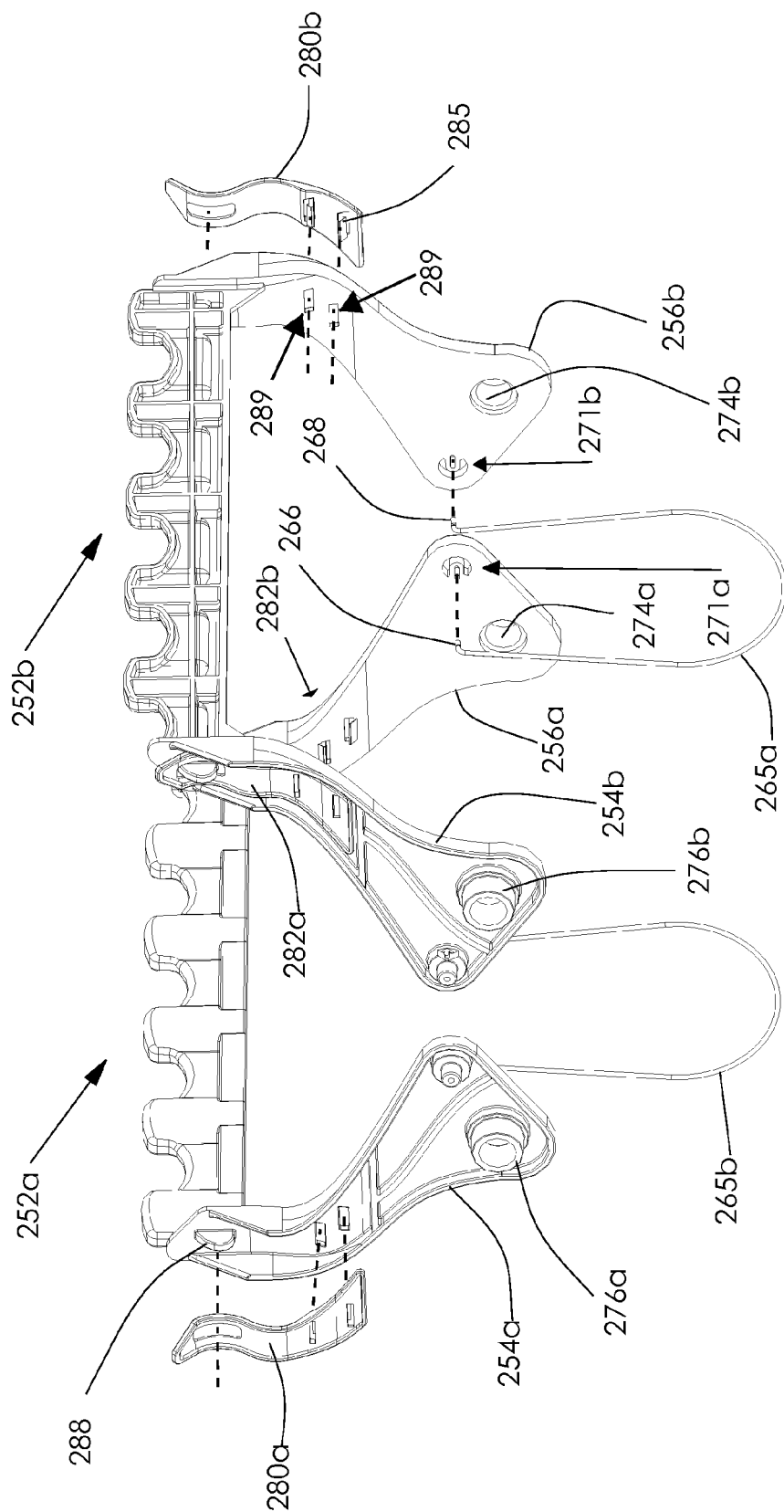


Fig. 13

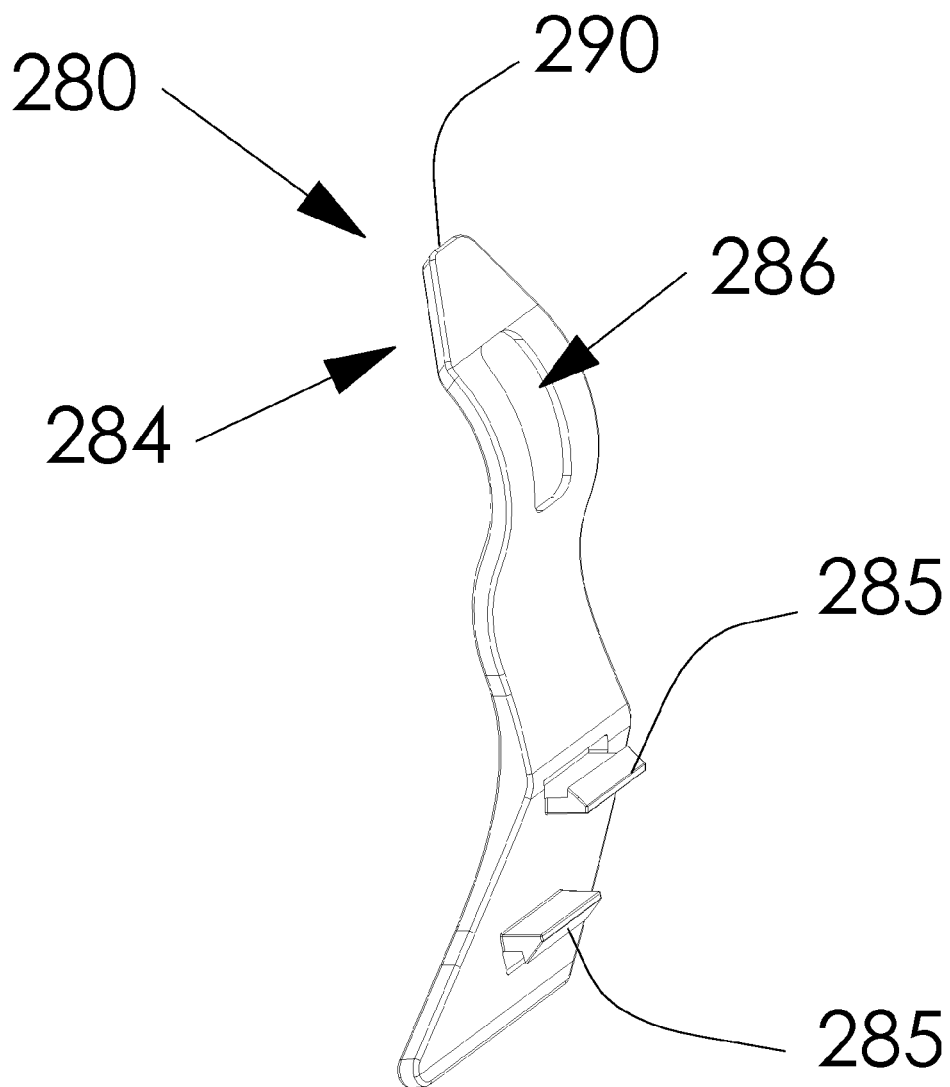


Fig. 14

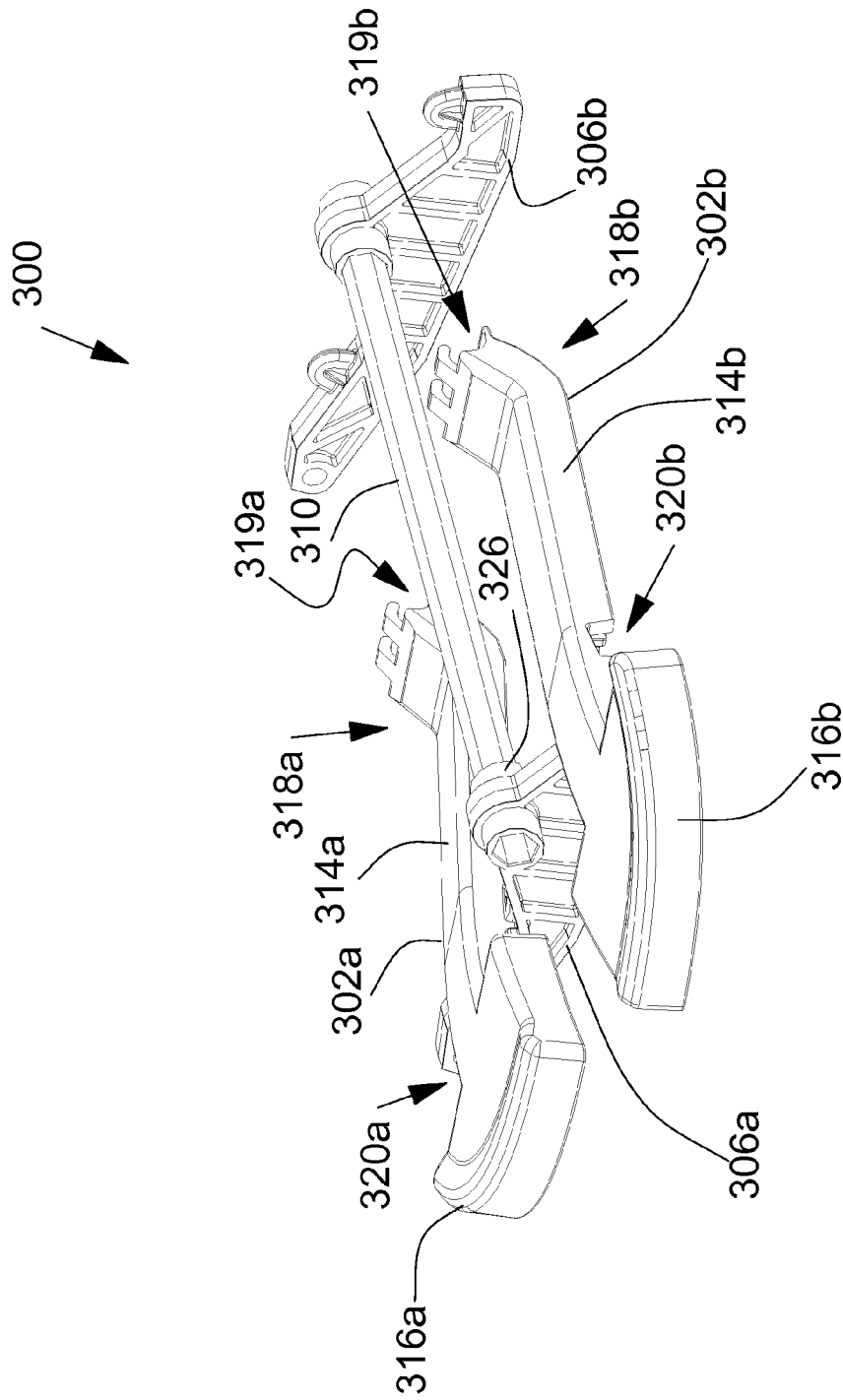


Fig. 15

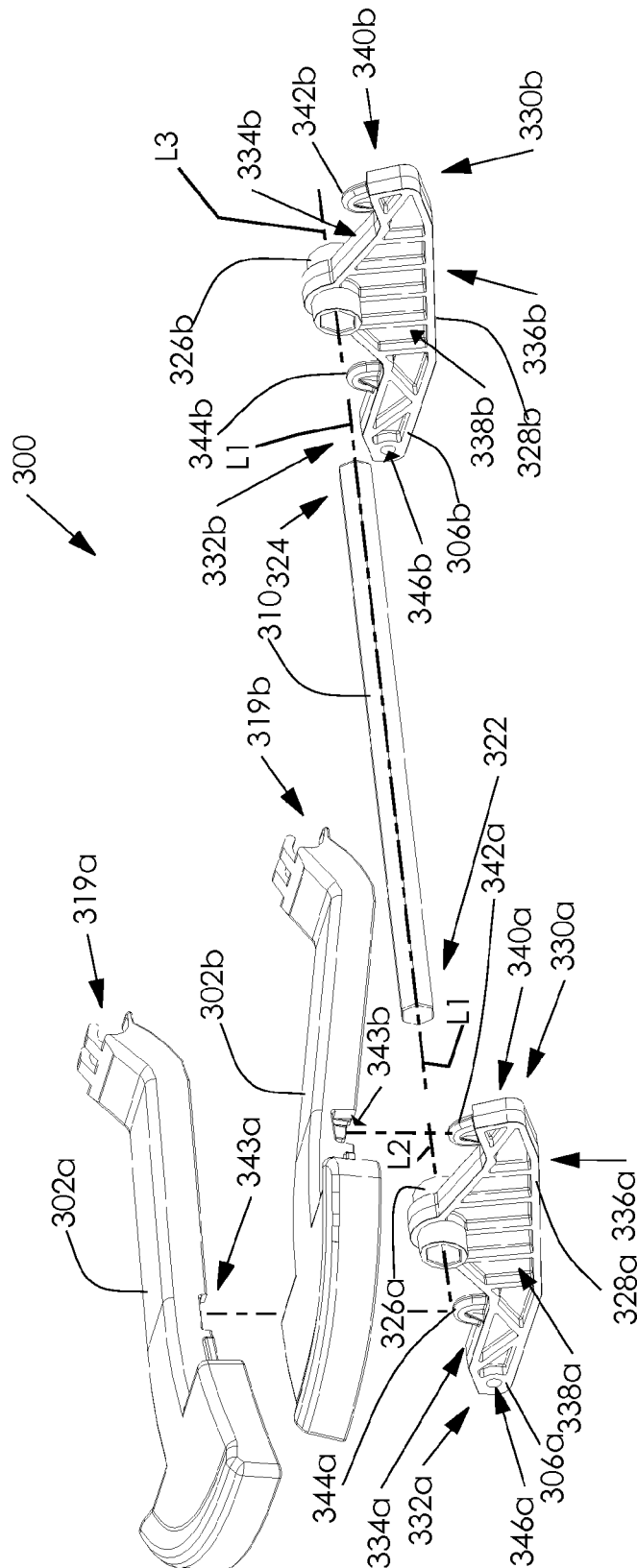


Fig. 16

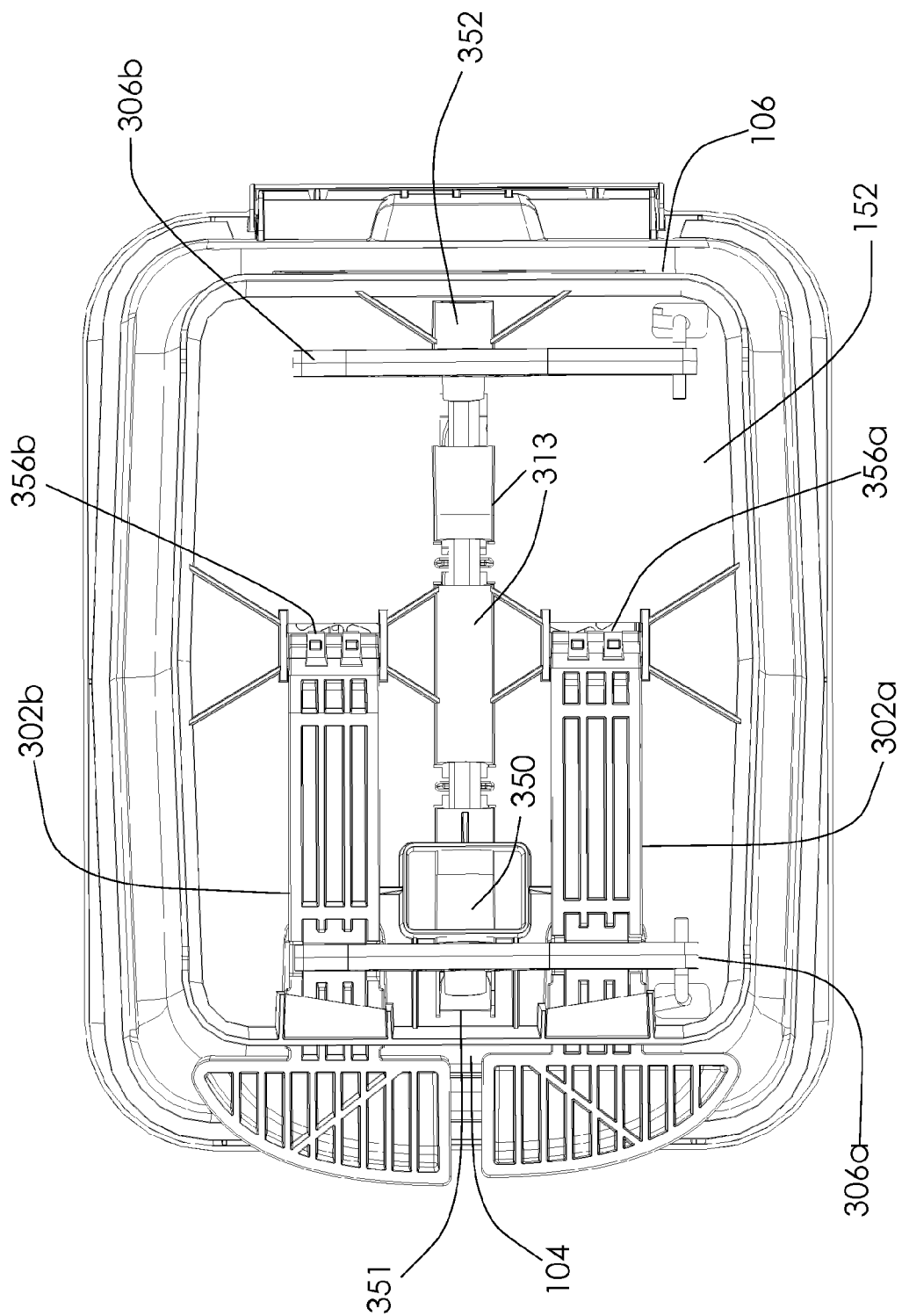


Fig. 17

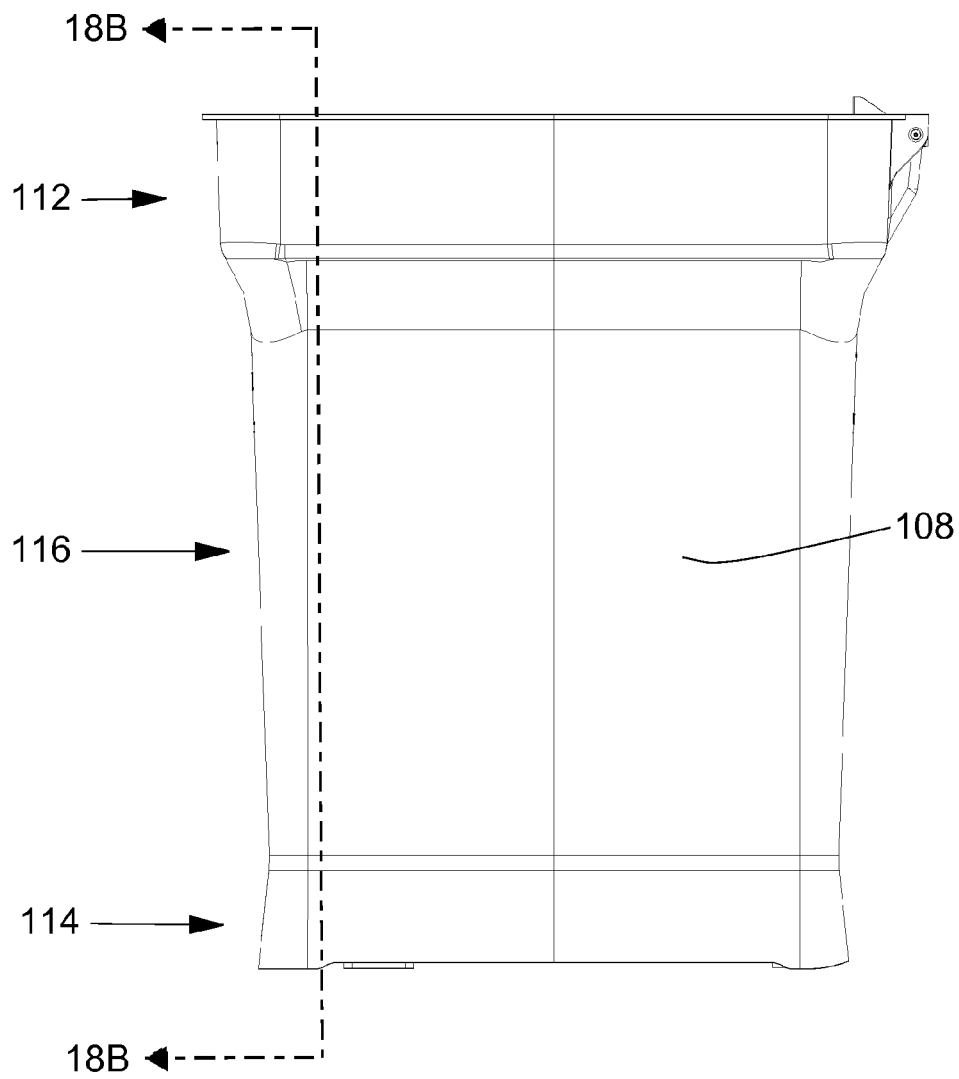


Fig. 18A

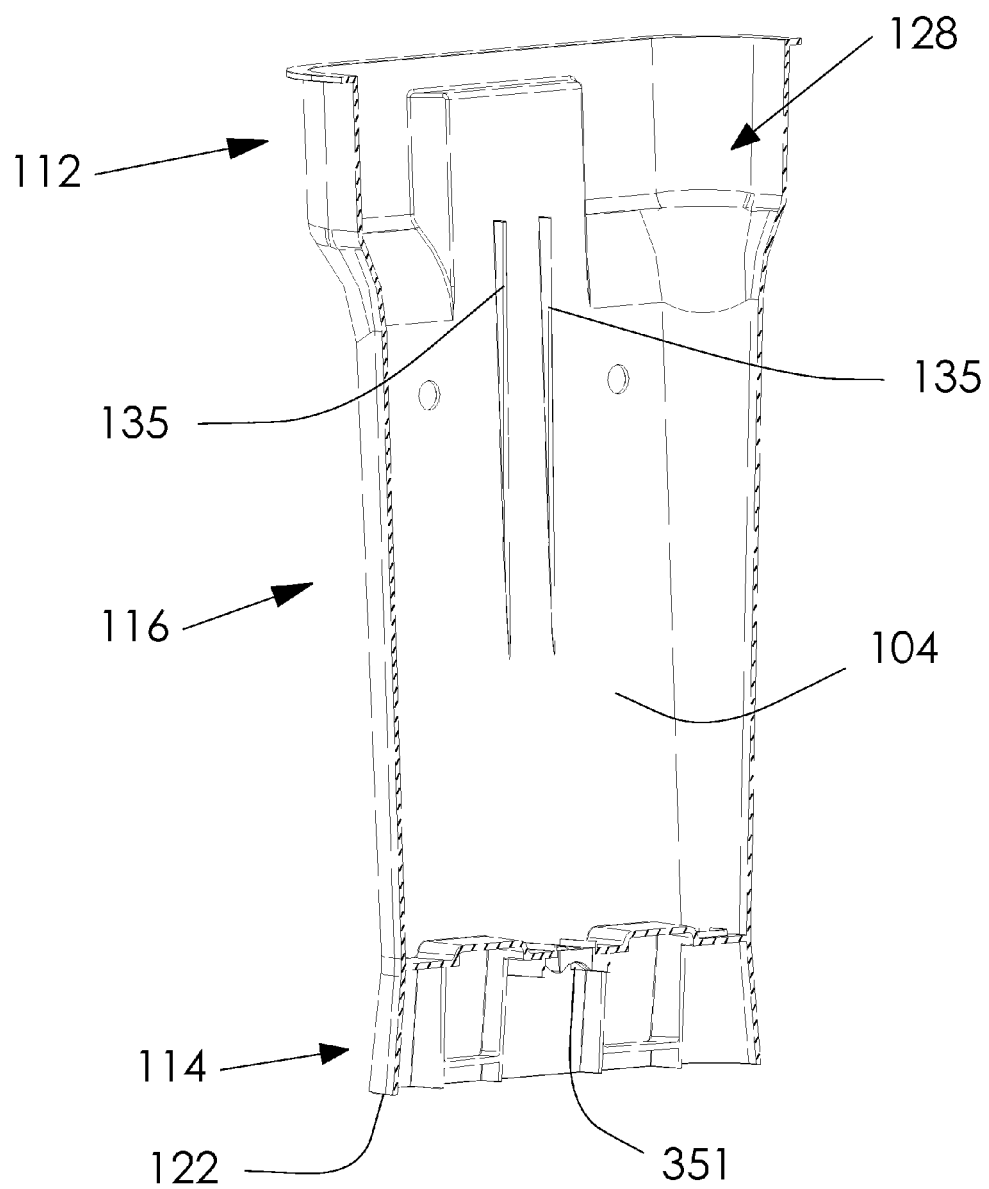


Fig. 18B

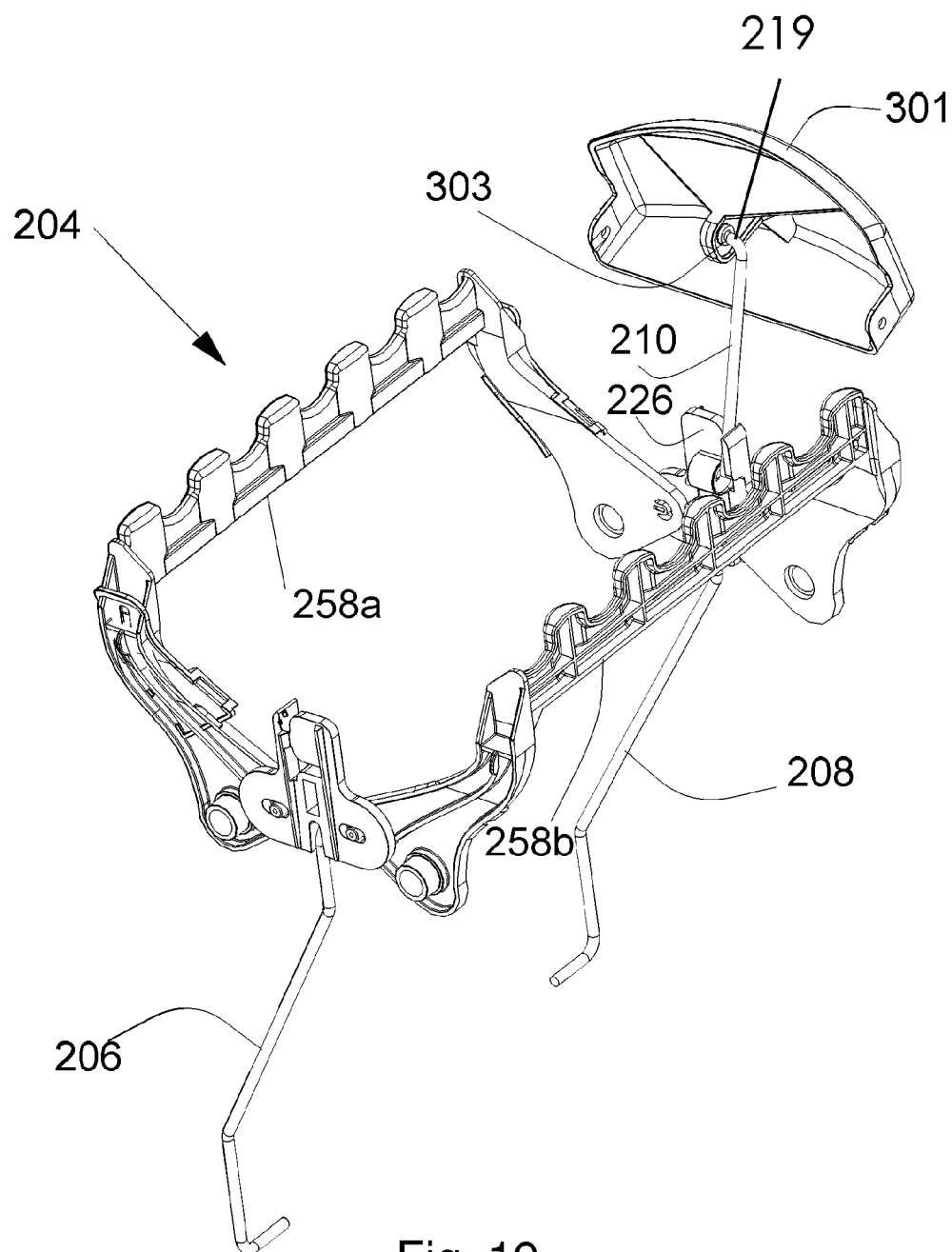


Fig. 19

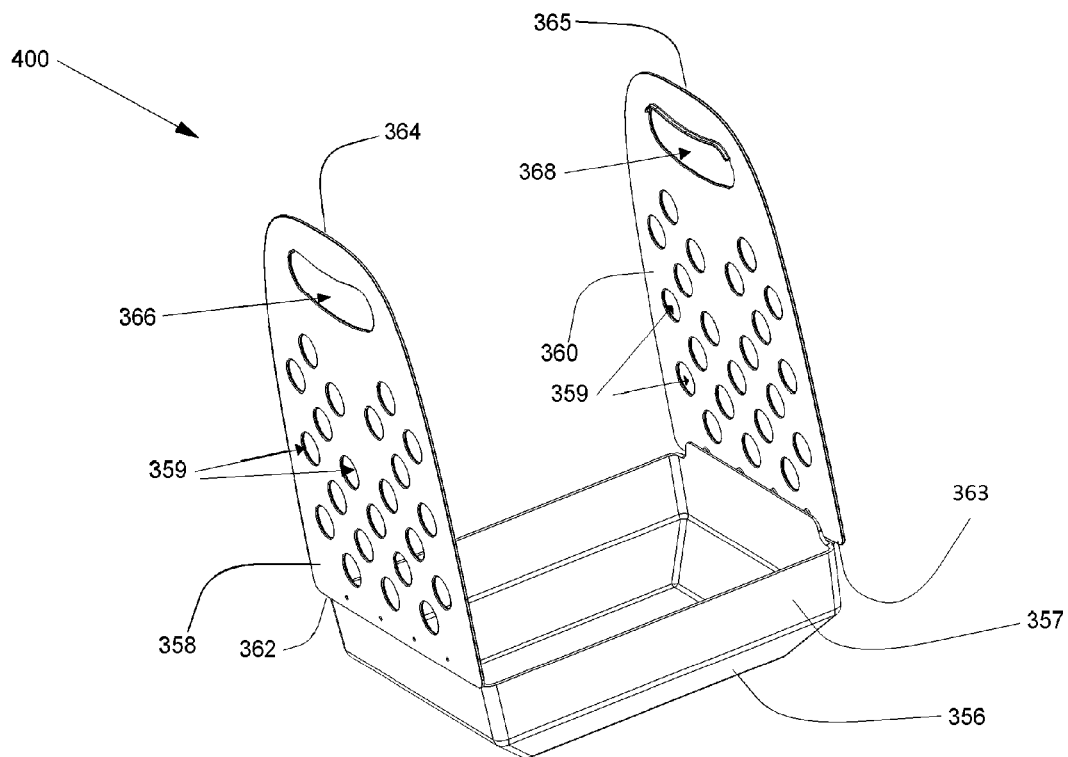


Fig. 20

1

WASTE CONTAINMENT RECEPTACLE

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. application Ser. No. 14/279,205, filed May 15, 2014, entitled "Waste Containment Receptacle," which claims the benefit of U.S. Provisional Application No. 61/841,373, filed Jun. 30, 2013, which applications are incorporated here in their entirety by this reference.

TECHNICAL FIELD

This invention is related to waste disposal containers for collecting odorous material.

BACKGROUND

There is a need for an indoor storage container that eliminates the obvious side effects associated with storing unpleasant waste materials (e.g. organic waste, diapers, pet waste, fish, regular trash, and other smelly material) in one's living space, specifically odors, pests, and messes. This will help reduce the amount of half-filled plastic bags going to the landfill and reduce the frequency of taking out the trash. The invention is unique because it may automatically open and close a trash liner hands free, which of course is much more sanitary than removing tops and lids and fumbling with a soiled liner. It is also unique because it places a seal in the trash liner between uses, trapping the foul odor of offensive waste inside the liner while blocking out pests and pets. In addition, the invention's removable components make it adaptable for a variety of storage applications.

SUMMARY

The invention of the present application is a waste receptacle comprising a body defining a cavity in which waste can be collected, a closing system to manage odor, and an actuator system to open and close the waste receptacle.

The closing system comprises a clamping mechanism housed inside the body. A bag or liner is placed inside the body with the opening of the bag disposed about the clamping mechanism. Actuation of the actuator system causes the clamping mechanism to open and close so as to open and close the opening of the bag. The closing system may further comprise a lid that opens and closes simultaneously with the clamping mechanism.

The actuator system may comprise a pair of pedal levers connected to the bottom of the waste receptacle, where depression of one pedal simultaneously opens the clamping mechanism and lid, and depression of the other pedal simultaneously closes the clamping mechanism and the lid.

The lid and pedal levers can be replaced with a hand actuator so that the clamping mechanism can be opened and closed with the hand rather than the feet using the pedals. The handle actuator can directly replace the lid and the pedal levers, if desired. In this configuration, the waste receptacle may be placed inside a cabinet.

A carrier may also be provided that can be housed in the body to support the waste collected in the bag. The carrier provides added support to transport the waste from the body to a desired location to be disposed or used as compost.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 shows a top perspective view of the receptacle in an open configuration.

2

FIG. 2 shows a side perspective view of the receptacle in a closed configuration.

FIG. 3 shows a top perspective view of the receptacle with the closing system removed.

FIG. 4 shows a rear, top perspective view of the body with the placard removed.

FIG. 5 shows a front, top perspective view of the body.

FIG. 6 shows a bottom perspective view of the body.

FIG. 7 shows a perspective view of an embodiment of the closing system with a lid in an open position.

FIG. 8 shows a perspective view of a clamp actuator.

FIG. 9 shows a front perspective view of the clamp arms in an open position.

FIG. 10 shows a rear perspective view of the clamp arms in an open position.

FIG. 11 shows a front perspective view of the clamping mechanism in a closed position.

FIG. 12 shows a front perspective view of a clamp arms in a closed position with the spring in place.

FIG. 13 shows a partial exploded view of a front perspective view of the clamp arms in an open position with the spring removed.

FIG. 14 shows a perspective view of a bag clip.

FIG. 15 shows a front perspective view of the actuator system.

FIG. 16 shows an exploded view of the actuator system.

FIG. 17 shows a bottom view of the waste receptacle.

FIG. 18A shows a side view of the body.

FIG. 18B shows a perspective cross-sectional view of the body taken along the line 18B-18B in FIG. 18A.

FIG. 19 shows a perspective view of a closing system with a hand actuator replacing the lid, and in an open position.

FIG. 20 shows a perspective view of the carrier.

DETAILED DESCRIPTION OF THE INVENTION

The detailed description set forth below in connection with the appended drawings is intended as a description of presently-preferred embodiments of the invention and is not intended to represent the only forms in which the present invention may be constructed or utilized. The description sets forth the functions and the sequence of steps for constructing and operating the invention in connection with the illustrated embodiments. It is to be understood, however, that the same or equivalent functions and sequences may be accomplished by different embodiments that are also intended to be encompassed within the spirit and scope of the invention.

The invention of the present application is directed towards a receptacle **100** that automatically opens and closes an inner lining or bag of the receptacle **100** to facilitate the collection of odorous waste, such as wasted food, pet waste, diapers, ordinary trash, and any other organic, odorous waste. A carrier **400** may also be provided to facilitate the transport of the waste to its desired location. Referring to FIGS. 1 and 2 (perspective view lid open and closed), the receptacle **100** of the present invention comprises a body **102** to house the waste, and a closing system **200** controlled by an actuator system **300** to open and close the receptacle **100**.
Body

The body **102** is preferably made of a rigid plastic material suitable for injection molding. The body **102** comprises opposing front and back walls **104**, **106**, and opposing right and left walls **108**, **110** adjacent to front and back walls **104**, **106** defining a top portion **112**, a bottom portion **114** opposite the top portion **112**, and a middle portion **116** therebetween. The front, back, right, and left walls **104**, **106**, **108**, **110** terminate at a top perimeter edge **118** defining a top opening

3

120 at the top portion 112, and a bottom perimeter edge 122 opposite the top perimeter edge 118, the bottom perimeter edge 122 defining a bottom opening 124 at the bottom portion 114.

As shown in FIG. 3, the front, back, right, and left walls 104, 106, 108, 110 define a main cavity 126 in the middle portion 116 in which the waste is housed. In the preferred embodiment, as the right and left walls 108, 110 approach the top perimeter edge 118, the right and left walls 108, 110 may expand outwardly creating an interior shelf portion 128 at the top portion 112 of the body 102, thereby creating an opening 120 having a width that is wider than a width of the cavity 126 so that the waste can be easily deposited and removed. The shelf portion 128 provides space for receiving portions of a clamping mechanism 204 in the open position (see FIG. 1) as described further below. On the inner side of the back wall 106 may be two vertical parallel tracks 133 that are bilaterally arranged about the centerline of the back wall 106. Similarly, on the inner side of the front wall 104 may be two vertical parallel tracks 135 (shown in FIG. 18B) that are bilaterally arranged about the centerline of the front wall 104. In some embodiments, the top perimeter edge 118 may comprise a flange 130 extending outwardly for the lid 202 to rest on when closed. In some embodiments, the front and back walls 104, 106 may also expand outwardly to further increase the size of the opening 120 at the top portion 112 so that a depth of the opening 120 is wider than a depth of the cavity 126. In some embodiments, the bottom portion 114 of the body 102 may also expand outwardly as the front and back 104, 106 and/or the right and left 108, 110 walls approach the bottom perimeter edge 122. This provides added stability to the receptacle. The bottom further comprises a base 152 to provide additional support. The base 152 may comprise posts 155 that project into the cavity 126 upon which the carrier 400 may be seated for proper alignment.

The back wall 106 may comprise a recess 132 formed adjacent to the top perimeter edge 118 approximately midway between the right and left walls 108, 110. The back wall 106 may also comprise an extended lip 134 along the top perimeter edge 118. The extended lip 134 allows the lid 202 to be attached to the body 102. In some embodiments, a pair of pins 136a, 136b project laterally from the extended lip 134. These pins 136a, 136b can be used for mounting the lid 202 onto the body 102 in a rotatable manner. The recess 132 provides space for components of the closing system 200 to attach to the lid 202 for opening and closing the lid 202, as shown in FIG. 1.

As shown in FIG. 4, the back wall 106 may further comprise holes 138a, 138b for securing the components of the closing system 200 to the body 102. A placard 140 or some other aesthetically pleasing cover, may be used to cover up the holes 138a, 138b once installation is complete for aesthetic purposes. The placard 140 may have projecting posts 141a, 141b that are inserted through holes 138a, 138b, preferably via snap-fit posts, to secure the clamping mechanism 204 to the back wall 106. The holes 138a, 138b on the back wall 106 are preferably positioned below the shelf portion 128. In some embodiments, the bottom portion 114 of the back wall 106 may comprise additional holes and/or slots for receiving components of the actuator system 300.

As shown in FIG. 5, the front wall 104 may comprise a carrying handle 142 for easily lifting the receptacle 100. For example, in one embodiment, the handle 142 is created by an indentation 144 formed just below the top perimeter edge 118 creating a recess within the top portion 112 of the front wall 104. As the indentation 144 approaches the top perimeter edge 118, the front wall 104 may project outwardly creating

4

a ledge that can be used as the handle 142. The front wall 104 may also comprise holes 146a, 146b for holding components of the closing system 200. A second placard 148 may be used to cover up the holes 146a, 146b once installation is complete. The second placard 148 may also have projecting posts 143a, 143b that are inserted through holes 146a, 146b to secure the clamping mechanism 204 to the front wall 104. The holes 146a, 146b on the front wall 104 are preferably positioned below the shelf portion 128.

The front wall 104 further comprises a pair of cutouts 150a, 150b at the bottom portion 114 of the body 102. The cutouts 150a, 150b may be bilaterally arranged about the centerline of the front wall 104. The cutouts 150a, 150b are configured to receive components of the actuator system 300 as discussed in detail below.

As shown in FIG. 6, in some embodiments, a base 152 may be positioned at the bottom portion 114 of the body 102 and connected to the front, back, left, and right walls 104, 106, 108, 110. The base 152 provides a floor upon which the inner contents of the receptacle 100 can rest. Preferably, the base 152 is positioned just above the level of the two cutouts 150a, 150b so as to accommodate the actuator system 300.

The base 152 may comprise a first hole 154 adjacent to the front wall 104 and a second hole 156 opposite the first hole 154 and adjacent to the back wall 106. The first and second holes 154, 156 provide inlets for components of the closing system 200 to enter into the main cavity 126. The base 152 further comprises bushings 350, 352, a stop 351, and cover 313 on the bottom side to hold and/or cover components of the actuator system 300 as described further below. Projecting upwardly onto the top side of the base 152 are a plurality of locating posts 115, 155 that allow the carrier 400 to be secured in place inside the body 102. The carrier 400 may, therefore, have divots on the bottom side to receive these posts 115, 155.

In some embodiments, partitions may extend downwardly from the base 152. The partitions may extend from the front wall 104 to the back wall 106. A first set of partitions may be adjacent to the right wall 108 and a second set of partitions may be adjacent to the left wall 110. The partitions provide additional support to the base 152. In some embodiments, projecting downwardly from the base 152 in between the two sets of partitions is a plurality of posts for mounting the actuator system 300. These posts may be threaded.

Closing System

As shown in FIG. 7, in some embodiments, the closing system 200 may comprise a lid 202 and a clamping mechanism 204. The closing system 200 may be configured to simultaneously open and close the lid 202 and the clamping mechanism 204.

The back side of the lid 202 comprises an open slot 201 that faces away from the back wall 106 of the body 102. The open slot 201 receives the top end 219 of an extended arm 210 of the clamping mechanism 204 that allows for the lid 202 not only to be lifted or shut simultaneously with the clamping mechanism 204 if activated via the actuator system 300, but also to be lifted or shut independently without opening or closing the clamping mechanism 204. Thus, the open slot 201 allows the lid to disengage from the actuator system 300.

The lid 202 may have a ventilation system that comprises a vent 213. In the preferred embodiment, the vent 213 may not be in line with the surface of the lid 202 so as to slightly elevate or depress a portion 211 of the lid 202 relative to the remaining surface of the lid 202. The vent 213 contain at least two holes 217, allowing for air ventilation. The lid may also comprise a perforated flap 205 (shown in FIG. 1) with a multitude of holes 215 that may be hinged to the lid 202. In the

preferred embodiment, the perforated flap **205** may swivel and rotate around two hinged joints **209** on the lid **202** and may be removably secured onto the lid **202** via two hooks **207** on the lid **202**. A filter (not shown) may be housed in between the lid **202** and flap **205**. For example, an activated charcoal filter may be inserted in between the perforated flap **205** and the lid **202** to control odor created by the waste in the receptacle **100**.

The clamping mechanism **204** comprises a front lift arm **206** adjacent to the front wall **104** of the body **102** and a back lift arm **208** adjacent to the back wall **106** of the body **102**. The front and back lift arms **206**, **208** are substantially similar with one major difference being that the back lift arm **208** further comprises an extended arm **210** that attaches to the lid **202** or a hand actuator **301** as discussed below.

Both lift arms **206**, **208** comprise a bottom end **212**, **214**, a top end **216**, **218** opposite the bottom end **212**, **214**, and a bent post **220**, **222** extending therebetween, respectively. The bottom ends **212**, **214** are configured to attach to components of the actuator system **300**. By way of example only, the lift arms **206**, **208** are made from cylindrical rods. Therefore, the bottom ends **212**, **214** may terminate as pins that can be inserted into a hole of a component of the actuator system **300** to connect to the actuator system **300** as discussed below.

The bent posts **220**, **222** allow their respective bottom ends **212**, **214** to be positioned adjacent to one of the side walls (in this example, the left wall **110**) while allowing their respective top ends **216**, **218** to align with the center line of the front and back wall **104**, **106**, respectively. Therefore, when properly installed the front and back lift arms **206**, **208** extend upwardly from their respective bottom ends **212**, **214**, then bend towards the centerlines of the front and back walls **104**, **106**, respectively, then continue extending upwardly along their respective centerlines, terminating at their respective top ends **216**, **218** centrally located between the right and left walls **108**, **110**. Each top end **216**, **218** of the lift arm **206**, **208** is operatively connected to their respective clamp actuator (front and back clamp actuators **224**, **226**).

The extension arm **210** may continue upwardly until a top end **219** of the extension arm **210** meets the back portion of the lid **202**. The extension arm **210** may be attached to or abutable against the back portion of the lid **202**. The back portion of the lid **202** is rotatably attached to the back wall **106** of the body **102** via the pins **136a**, **136b**. In some embodiments, the extension arm **210** is slightly tilted towards the back wall **106**. When actuated to lift upwardly, the extension arm **210** applies pressure against the back portion of the lid **202**. In some embodiments, the pressure is an upward and rearward force. This causes the back portion of the lid **202** to rotate about the axis defined by the pins **136a**, **136b**. Rotation about this axis causes front portion of the lid **202** to rise up into the open configuration. In some embodiments, the clamp actuators **224**, **226** may be integrally formed with their respective lift arms **206**, **208**. As the lift arms **206**, **208** move up and down from movement of the actuator system **300**, the clamp actuators **224**, **226** similarly move up and down, thereby opening and closing the clamping mechanism **205** as discussed below.

In the preferred embodiment, movement of the clamp bars **258a**, **258b** are controlled by the clamp actuators **224**, **226**. The front and back clamp actuators **224**, **226** may be identical. Therefore, only the front clamp actuator is described below, but the description is applicable to the back clamp actuator **226** as well. As shown in FIG. 8, the clamp actuator **224** is a flat plate having two bilaterally arranged horizontal slots **228a**, **228b**. In between the horizontal slots is a center hole **230**. The center hole **230** is configured to receive the top ends

216, **218** of the lift arms **206**, **208**. Above the center hole **230** is a center slot **232**. The center slot **232** is configured to receive the bottom end of the extension arm **210**. There may be two parallel vertical rails **233** that are bilaterally arranged about the center hole **230** of the clamp actuator **224**. The distance between the two parallel vertical rails **233** are configured to slide along the two vertical parallel tracks **135** on the front wall **104** or the two vertical parallel tracks **133** on the back wall **106** of the body **102**. In the preferred embodiment, the horizontal slots **228a**, **228b** are on the outsides of the two parallel vertical rails **233** and the center hole **230** and center slot **232** are in between the two parallel vertical rails **233**.

As shown in FIGS. 9 and 10, the clamping mechanism **204** comprises a pair of clamp arms **252a**, **252b**. FIG. 9 shows a front perspective view of the clamp arms **252a**, **252b** and FIG. 10 shows the rear perspective view. Each clamp arm **252a**, **252b** comprises a front arm **254a**, **254b**, a back arm **256a**, **256b**, and a clamp bar **258a**, **258b** therebetween operatively connected to the front arms **254a**, **254b** and back **256a**, **256b** arms, respectively. Each front arm **254a**, **254b** has a transverse base **260a**, **260b**, with an upwardly projecting connector arm **262a**, **262b**, respectively. Each connector arms **262a**, **262b** is connected to each clamp bar **258a**, **258b**, respectively, thereby positioning the transverse bases **260a**, **260b** below the clamp bars **258a**, **258b**. Each transverse base **260a**, **260b** comprises a lateral peg **264a**, **264b** and a central peg **266a**, **266b** at opposite ends of their respective transverse base **260a**, **260b**. Each lateral peg **264a**, **264b** is positioned laterally closer to the left or right wall **110**, **108**, respectively. Each central peg **266a**, **266b** is positioned inwardly towards the centerline of the front and back walls **104**, **106**.

The front arms **254a**, **254b** are attached to the front wall **104** via their lateral pegs **264a**, **264b**. The lateral pegs **264a**, **264b** extend forwardly toward the front wall **104** from their respective transverse bases **260a**, **260b**. These lateral pegs **264a**, **264b** may fit into their respective holes **146a**, **146b** on the front wall **104** (shown in FIG. 5) so that the clamp arms **252a**, **252b** can be mounted on the body **102**. Alternatively, or in addition to, the lateral pegs **264a**, **264b** may have holes **147a**, **147b** into which the posts **143a**, **143b** of the front placard **148** can be inserted to secure the clamp arms **252a**, **252b** to the front wall **104**. The lateral pegs **264a**, **264b** are cylindrical so as to be rotatable within the holes **146a**, **146b** and/or about the posts **143a**, **143b**. Being fixed yet rotatable, these lateral pegs **264a**, **264b** become hinge points about which their respective clamp arms **252a**, **252b** can rotate.

The central pegs **266a**, **266b** fit inside the horizontal slots **228a**, **228b** of the clamp actuator **224**, on their respective sides, in a slidable manner. Thus, the central pegs **266a**, **266b** are configured to slide back and forth within their respective horizontal slots **228a**, **228b**.

Similarly, with reference to FIG. 10, each back arm **256a**, **256b**, respectively, has a transverse base **270a**, **270b** with an upwardly projecting connector arm **272a**, **272b**. Each connector arm **272a**, **272b** is connected to the clamp bar **258a**, **258b**, respectively, thereby positioning the transverse bases **270a**, **270b** below the clamp bars **258a**, **258b**. Each transverse base **270a**, **270b** comprises a lateral peg **274a**, **274b** and a central peg **276a**, **276b** at opposite ends of their respective transverse base **270a**, **270b**. Each lateral peg **274a**, **274b** is positioned laterally closer to the left or right wall **110**, **108**, respectively. Each central peg **276a**, **276b** is positioned inwardly towards the centerline of the front and back walls **104**, **106**, respectively.

The back arms **256a**, **256b** are attached to the back wall **106** via their lateral pegs **274a**, **274b** similar to the way the front arms **254a**, **254b** are attached to the front wall **104**. The lateral

pegs **274a**, **274b** extend rearwardly toward the back wall **106** from their respective transverse bases **270a**, **270b**. These lateral pegs **274a**, **274b** may have holes **139a**, **139b** into which the posts **141a**, **141b** of the back placard **140** can be inserted to secure the clamp arms **252a**, **252b** to the back wall **106**. The lateral pegs **274a**, **274b** are cylindrical so as to be rotatable within the holes **138a**, **138b** on the back wall **106** and/or about the posts **141a**, **141b**. Being fixed yet rotatable, these lateral pegs **274a**, **274b** become hinge points about which their respective clamp arms **252a**, **252b** can rotate.

The central pegs **276a**, **276b**, like the central pegs **266a**, **266b** of the front arm **254a**, **254b**, fit inside the horizontal slots **228a**, **228b** of the clamp actuator **226**, on their respective sides, in a slidable manner, and are configured to slide back and forth within their respective horizontal slots **228a**, **228b**. Thus, as the clamp arms **252a**, **252b** move from the open and closed positions about their respective hinge points, the central pegs **276a**, **276b** slide within their respective horizontal slots **228a**, **228b** to accommodate such movements.

As shown in FIG. 11, the clamp bars **258a**, **258b** are configured to mate with each other when in the closed configuration. In the preferred embodiment, the clamp bars **258a**, **258b** may have a plurality of fingers **261a-e**, **263a-e** that can interlock with each other when in the closed configuration such that a finger (e.g. **261b**) on one clamp bar **258a** fits in between two fingers (e.g. **263a**, **263b**) on the opposite clamp bar **258b**. In some embodiments, the clamp bars **258a**, **258b** may have alternating horizontal strips that mate with each other like a zip locking bag. The horizontal strips may extend across the entire length of their respective clamp bar. In some embodiments, the clamp bars **258a**, **258b** may have an adhesive strip that allows a plastic bag placed in between the clamp bars **258a**, **258b** to adhere to the clamp bars **258a**, **258b**. In other embodiments, the clamp bars **258a**, **258b** may have an adhesive or tacky silicone applied to the fingers **261a-e**, **263a-e** and/or ends of the clamp bars **258a**, **258b**. The adhesives or tacky silicone help keep a liner or bag attached to the clamp bars **258a**, **258b** while the clamp bars **258a**, **258b** are opened or closed.

In some embodiments, as shown in FIGS. 12 and 13, one or more springs **265a**, **265b** may be used to keep the clamp arms **252a**, **252b** in the open or closed configuration. The springs **265a**, **265b** can be attached to the front arms **254a**, **254b** and/or back arms **256a**, **256b** in such a way as to create a laterally-directed biasing force (i.e. towards the left and right walls). Due to the positioning of the spring and the rotational movement of the clamp arms **252a**, **252b**, the laterally-directed biasing force will keep the lid **202** and the clamping mechanism **204** open when in the open configuration, and it will keep the clamping mechanism **204** closed when the clamping mechanism **204** is in the closed configuration.

The springs **265a**, **265b** may be identical; therefore, for convenience only, one spring **265a** will be described. By way of example only, the spring **265a** may be an elongated rod that is flexible enough to bend, but also has elastic properties to naturally tend toward a straightened configuration. The spring **265a** may have free ends **266**, **268** bent into hook-like configurations so as to be secured to opposing front arms **254a**, **254b** or opposing back arms **256a**, **256b**. FIG. 12 shows the spring **265a** attached to opposing back arms **256a**, **256b**. The back arms **256a**, **256b** are configured to have holes and/or slots **271a**, **271b** to receive the free ends **266**, **268** of spring **265** on opposite sides. The holes/slots **271a**, **271b** are positioned medially relative to the pivot points (i.e. lateral pegs **274a**, **274b**). In the preferred embodiment, the holes/slots **271a**, **271b** may be a circular hole and/or a crescent-shaped slot. As shown in FIG. 12, when the clamp arms **252a**, **252b**

are in the closed configuration, the holes/slots **271a**, **271b** are below the pivot points. As shown in FIG. 13, when the clamp arms **252a**, **252b** are in the open configuration, the holes/slots **271a**, **271b** are above the pivot points. The distance between the holes/slots **271a**, **271b** receiving the spring **265a** is less than the length of spring **265a**. Therefore, the spring **265a** may be bent into a U-shaped configuration for the free ends **266**, **268** to be inserted into the holes/slots **271a**, **271b**, respectively.

In this configuration, the elastic properties of the spring **265a** will urge the free ends **266**, **268** away from each other. When the clamp arms **252a**, **252b** are in the closed configuration, the free ends **266**, **268** are below the pivot points. Therefore, urging the free ends **266**, **268** away from each other causes the free ends **266**, **268** to move under the pivot point thereby causing one clamp arm to rotate in the clockwise direction (in this example the left clamp arm **252a**) and the other clamp arm to rotate in the counterclockwise direction (in this example the right clamp arm **252b**), thereby urging the clamp arms **252a**, **252b** to be in the clamped configuration.

When the clamp arms **252a**, **252b** are in the open configuration, the free ends **266**, **268** rotate to a position above the pivot points. Therefore, urging the free ends **266**, **268** away from each other causes one clamp arm to rotate in the counterclockwise direction (in this example, the left clamp arm **252a**) and the other clamp arm to rotate in the clockwise direction (in this example, the right clamp arm **252b**), thereby urging the clamp arms **252a**, **252b** to be in the opened configuration. This spring **265a** can be applied to the back arms **256a**, **256b**, front arms **254a**, **254b**, or both. Other mechanisms for urging the medial ends outwardly above and below the lateral pegs can be used, including tension springs, compression springs, and the like.

In some embodiments, bag clips **280a**, **282a** may be used to secure the bag to the clamp arms **252a**, **252b**. The bag clips **280a**, **282a** on opposing front arms **254a**, **254b** are mirror images of each other, but otherwise have the same structural features. Additional bag clips **280b**, **282b** are identical to bag clips **280a**, **282a**, respectively, can be used on the appropriate back arms **256b**, **256a**. For the sake of convenience, only one bag clip **280a** and the front arm **254a** will be described, but the features described apply to any of the bag clips **280a**, **280b**, **282a**, **282b** and their respective arms **254a**, **256a**, **254b**, **256b**. As shown in FIG. 14, the bag clip **280** is designed to snap on to the front arms **254a**, **254b** or back arms **256a**, **256b**. To that effect, the bag clip **280** may comprise clip arms **285** to snap onto the front arms **254a**, **254b** or back arms **256a**, **256b**. The clip arms **285** may clip on to the side of the front or back arms, or through a slits **289** in the front or back arms. A top portion **284** of the bag clip **280** may comprise a slot **286** through which a protuberance **288** on the front or back arm can be inserted. The bag clip **280** may have some elasticity so that when the top portion **284** is pulled away from the front arm **254a**, the top portion **284** may flex away from the front arm **254a** without snapping off. Portions of a bag inserted in between the bag clip **280** and the front arm **254a**, for example, would be locked in when the bag clip **280** is released and snapped back towards the front arm **254a** with the bag inserted in between the protuberance **288** and the slot **284**. To facilitate pulling the top portion **284** of the bag clip **280** away from the front arm **254a**, the top portion **284** may have a puckered lip **290** that bends away from the front arm **254a** so as to create a handle to grab. Any other way for creating a gap between the top portion **284** and the front arm **254a** can be used so that the user can have a convenient place to pull the bag clip **280** away from the front arm **254a**.

In some embodiments, a lock may be provided to keep the lid 202 in the open configuration while the user is able to collect the waste for deposit into the receptacle 100 without having to maintain pressure on the pedal.

The Actuator System

The actuator system 300 is operatively connected to the closing system 200 so that the actuator system 300 can open and close the closing system 200.

In the preferred embodiment, as shown in FIGS. 15 and 16, the actuator system 300 comprises a pair of pedal levers 302a, 302b, a pair of rocker arms (front rocker arm 306a and back rocker arm 306b), and an axle 310 connecting the rocker arms 306a, 306b. The actuator system 300 is used to control the closing system 200. Whenever the lid 202 is closed by the actuator system 300, the clamping mechanism 204 is closed by the actuator system 300, and when the lid 202 is opened by the actuator system 300, the clamping mechanism 204 is opened by the actuator system 300. The two pedal levers 302a, 302b may be mirror images of each other arranged bilaterally adjacent to each other. Each pedal lever 302a, 302b comprises a lever arm 314a, 314b and a pedal 316a, 316b. The lever arms 314a, 314b each have a proximal end 318a, 318b and a distal end 320a, 320b. Each proximal end 318a, 318b of the lever arm 314a, 314b comprises a c-shaped opening 319a, 319b that connects to the base 152 as discussed below. The pedals 316a, 316b provide a convenient stepping surface for the user to apply pressure with his or her feet to depress the pedal 316a, 316b accordingly.

As shown in FIG. 16, the axle 310 may be an elongated member defining a longitudinal axis L1 having a forward end 322 and a rearward end 324. The forward end 322 of the axle 310 is configured to receive the front rocker arm 306a, and rearward end 324 of the axle 310 is configured to receive the back rocker arm 306b. In some embodiments, the axle 310 may be faceted. For example, the axle 310 may be hexagonal in shape to facilitate the rocking movement of the arms 306a, 306b. The axle 310 is positioned in between the two pedal levers 302a, 302b.

In the preferred embodiment, the front and back rocker arms 306a, 306b are identical. The front rocker arm 306a performs a seesaw or rocking action to rotate the axle 310 about its longitudinal axis L1 in a clockwise and counter-clockwise fashion. The front rocker arm 306a comprises a front socket 326a defining a longitudinal axis L2. The front socket 326a is configured to receive the forward end 322 of the axle 310 so that the longitudinal axis L2 of the front socket 326a is coaxially aligned with the longitudinal axis L1 of the axle 310. The outer surface of the axle 310 is configured to mate with the inner surface of the front socket 326a such that rotation of the front socket 326a about its longitudinal axis L2 causes rotation of the axle 310 about its longitudinal axis L1. For example, in the preferred embodiment, the outer surface of the axle 310 and the inner surface of the front socket 326a may have a hexagonal cross section of substantially the same size.

Extending bilaterally away from the front socket 326a approximately perpendicularly to the longitudinal axis L2 of the socket 326a is a front support arm 328a terminating at opposite terminal ends 330a, 332a. The front support arm 328a has a top edge 334a, a bottom edge 336a opposite the top edge 334a, a front face 338a adjacent to the top and bottom edges, and a back face 340a opposite the front face and adjacent to the top and bottom edges. The front socket 326a may protrude forwardly and/or rearwardly away from the front and/or back faces 338a, 340a of the front support arm 328a so as to jut out from the front and/or back face 338a, 340a. The top edge 334a comprises two connectors 342a,

344a to allow the support arm 328a to operatively connect with reciprocal connectors 343a, 343b on their respective pedal levers 302a, 302b at or near the terminal ends 330a, 332a. One of the terminal ends 332a also comprises a second connector mechanism 346a to operatively connect to the front lift arm 206. In the preferred embodiment, the second connector mechanism 346a may be a bore through which the bottom end 212 of the front lift arm 206 can be inserted.

In the preferred embodiment, the connectors 342a, 344a are arcuate nubs. The reciprocal connectors 343a, 343b on the pedal levers 302a, 302b are slots configured to receive the arcuate nubs so as to prevent the pedal levers 302a, 302b from slipping off of the support arm 328a. This arrangement can be reversed with the nubs 342a, 344a protruding from the pedal levers 302a, 302b and the slots 343a, 343b located on the support arm 328a. Any other type of fastening mechanism can be used to secure the pedal levers 302a, 302b to the front support arm 328a.

In the preferred embodiment, to facilitate the rocking action of the front rocker arm 306a, the bottom edge 336a may be curved upwardly moving towards the terminal ends 330a, 332a. In some embodiments, the bottom edge 336a may be faceted with flat surfaces that start out horizontal directly beneath the front socket 326a and progressively increase in angle relative to the floor moving towards the terminal ends 330a, 332a. For example, in the preferred embodiment, when the bottom edge 336a directly beneath the front socket 326a (referred to as the middle facet) is placed horizontally with the floor. A portion of the bottom edge moving laterally to the left (referred to as the left facet), and a portion of the bottom edge moving laterally to the right (referred to as the right facet) may each bend slightly upwardly such that the middle facet and the right facet form an obtuse angle, and the middle facet and the left facet form an obtuse angle. This allows the left facet to be parallel to the floor when the left pedal is depressed and the right facet to be parallel to the floor when the right pedal is depressed.

In the preferred embodiment, the back rocker arm 306b is identical to the front rocker arm 306a. Therefore, the back rocker arm 306b comprises a back socket 326b configured to receive the rearward end 324 of the axle 310 so that the longitudinal axis L3 of the back socket 326b is coaxially aligned with the longitudinal axis L1 of the axle 310. The outer surface of the axle 310 is configured to mate with the inner surface of the back socket 326b such that rotation of the axle 310 about its longitudinal axis L1 causes rotation of the back socket 326b about its longitudinal axis L3. The back rocker arm 306b has a back support arm 328b projecting laterally from the back socket 326b and terminating at opposite terminal ends 330b, 332b. In some embodiments, the back support arm 328b may only project laterally on one side. The back support arm 328b has a top edge 334b, a bottom edge 336b opposite the top edge 334b, a front face 338b adjacent to the top and bottom edges, and a back face 340b opposite the front face and adjacent to the top and bottom edges. The back socket 326b may protrude forwardly and/or rearwardly away from the front and/or back faces 338b, 340b of the back support arm 328b so as to jut out from the front and/or back face 338b, 340b. The top edge 334b may comprise two connectors 342b, 344b, but these are not necessary as the back rocker arm 306b does not connect with the pedals. One of the terminal ends 332b also comprises a second connector mechanism 346b to operatively connect to the back lift arm 206. In the preferred embodiment, the second connector mechanism 346b may be a bore through which the bottom end 214 of the back lift arm 208 can be inserted.

11

In the preferred embodiment, to facilitate the rocking action of the back rocker arm **306b**, the bottom edge **336b** may be curved upwardly moving towards the terminal ends **330b**, **332b**. In some embodiments, the bottom edge **336b** may be faceted with flat surfaces that start out horizontal directly beneath the back socket **326b** and progressively increase in angle relative to the floor moving towards the terminal ends **330b**, **332b**, like the front rocker arm **306a**. Therefore, the back rocker arm **306b** may have the same middle facet, left facet, and right facet described above for the front rocker arm **306a**.

As shown in FIG. 17, the base **152** may provide the support structure for the pedal levers **302a**, **302b** and the front and back rocker arms **306a**, **306b** so as to suspend the front and back rocker arms **306a**, **306b** to allow for rotation and to allow the pedal levers **302a**, **302b** to move up and down. The base **152** may comprise a front bushing **350** adjacent to the front wall **104** and a back bushing **352** adjacent to the back wall **106**. The bushings **350**, **352** are configured to receive the sockets **326a**, **326b** of the front and back rocker arms **306a**, **306b**, respectively. The outer surfaces of each socket **326a**, **326b** are cylindrical in shape. The inner surfaces of each bushing **350**, **352** are substantially similar to the outer surface of their respective sockets **326a**, **326b** so that the sockets **326a**, **326b** are able to rotate about their longitudinal axis while sitting in their respective bushings **350**, **352**.

At roughly the middle region between the front wall **104** and the back wall **106** are bilaterally arranged cylindrical bars **356a**, **356b** (such as a peg, dowel, pin, and the like) hanging below the bottom side of the base **152** with their longitudinal axes parallel to the front and back walls **104**, **106**. The proximal ends **318a**, **318b** of each lever arm **314a**, **314b** of the pedal levers **302a**, **302b** may each comprise a c-shaped opening **319a**, **319b**. The c-shaped openings **319a**, **319b** are configured to mate or snap-fit with their respective cylindrical bars **356a**, **356b** in a rotatable manner so as to define a hinge point at the proximal ends of the pedal levers **302a**, **302b**. With the pedal levers **302a**, **302b** mounted on the front rocker arm **306a** at the distal ends **320a**, **320b**, and the proximal end **318a**, **318b** mounted to the base **152** via the c-shaped openings **319a**, **319b**, the pedal levers **302a**, **302b** are suspended off the floor and the distal ends **320a**, **320b** are capable of moving up and down while the proximal ends **318a**, **318b** remain fixed in location, but rotatable about their respective cylindrical bars **356a**, **356b**. A cover **313** may be provided to cover and protect the axle. The snap-fit connection makes it very easy to remove pedals in the event the user wants to use a hand actuator **301** to open and close the clamping mechanism.

To prevent the front rocker arm **306a** from any translational shift that would cause the front rocker arm **306a** to slide off the front bushing **350**, a stop **351** may be positioned or formed adjacent to the front rocker arm **306a** opposite the front bushing **350** so as to sandwich the front rocker arm **306a** in between the front bushing **350** and the stop **351**. The stop may be in the shape of an open arch as shown in FIG. 18B, which shows a cross-section taken along line 18B-18B shown in FIG. 18A. The open arch minimizes obstruction when inserting the front rocker arm **306a** into the front bushing **350**.

As shown in FIG. 19, the lid **202** may be replaced with a hand actuator **301**. The hand actuator **301** connects with the extension arm **210** much like the lid **202**. In the preferred embodiment, the hand actuator **301** has a closed slot or hole **303**, through which the top end **219** of the extension arm **210** can be inserted. The hand actuator **301** comprises a relatively flat top with the hole **303** attached underneath the flat top. The extended lip **134** of the body **102** allows the hand actuator **301**

12

to be attached to the body **102** much like the lid **202**. The pins **136a**, **136b** can be used for mounting the hand actuator **301** onto the body **102** in a rotatable manner. When the hand actuator **301** is lifted upwardly and rotated about an axis defined by the pins **136a**, **136b** away from the body **102**, the extension arm **210**, being caught in the hole **303**, applies an upward force on the back clamp actuator **226**. When the hand actuator **301** is pushed downwardly and rotated about the axis defined by the pins **136a**, **136b** towards the body **102**, the extension arm **210** may apply a downward force onto the back clamp actuator **226**. Therefore, as the hand actuator **301** moves up and down, the clamp actuator **226** similarly moves up and down. When the hand actuator **301** is lifted upwardly, the clamping mechanism **204** is open and when the hand actuator **301** is pushed downwardly, the clamping mechanism **204** is closed. Thus, when the lid is replaced by the hand actuator **301**, the pedal levers **302a**, **302b** may be removed. The waste receptacle may then be placed inside a cabinet with the handle facing the outside. To that effect, the body **102** may be dimensioned accordingly to fit inside various cabinet spaces. Alternatively, the body **102** can be dimensioned to be placed in the open similar to standard trash containers.

In an alternate embodiment, a separate mounting bracket may be used that is attachable to the base. In such an embodiment, the mounting bracket may be generally a rectangular block having a front end, a back end opposite the front end, a right and left sides, the right and left sides opposite each other and adjacent to the front end and back end, and top and bottom sides opposite each other and adjacent to the front and back ends, and right and left sides.

The front and back ends each comprise a bushing (front bushing **350** and back bushing **352**, respectively) configured to receive the socket **326a** of the front rocker arm **306a** and the socket **326b** of the back rocker arm **306b**, respectively. The outer surfaces of the each socket **326a**, **326b** are cylindrical in shape. The inner surfaces of each bushing **350**, **352** are substantially similar to the outer surface of their respective sockets **326a**, **326b**, so that the sockets **326a**, **326b** are able to rotate about their longitudinal axis while sitting in their respective bushings **350**, **352**. In some embodiments, the back end of the back bushing **352** is slanted inwardly towards top edge relative to the back wall **106**. This slant corresponds with the expanded bottom portion **114** of the body **102** so that the back end of the back bushing **352** will be flush with the back wall **106** of the body **102** when the back bushing **352** is fitted into the slot in the bottom portion **114** of the back wall **106**.

In some embodiments, adjacent to the back bushing **352** on the top side is a slot. The slot is configured to receive the support arm **328b** of the back rocker arm **306b** when the socket **326b** of the back rocker arm **306b** is placed into the back bushing **352**. Since the socket **326b** of the back rocker arm **306b** juts away from the back face **340b**, when the socket **326b** of the back rocker arm **306b** is placed into the back bushing **352**, the support arm **328b** of the back rocker arm **306b** fits in the slot at the back end of the mounting bracket so that the support arm **328b** can move up and down freely. Since the socket **326a** of the front rocker arm **306a** juts rearwardly, mounting the socket **326a** of the front rocker arm **306a** on the front bushing **326a** still allows the support arm **328a** of the front rocker arm **306a** to clear the mounting bracket so as to allow free movement of the rocker arms **306a**, **306b** without interference from the mounting bracket.

In the alternate embodiment of the mounting bracket, the top side of the mounting bracket comprises a flanged support face extending along the length of the mounting bracket. The support face allows the mounting bracket to be secured to the base **152** of the body **102**. The support face may comprise a

13

series of bores, preferably, threaded bores, corresponding with the posts on the protruding downwardly from the base 152. The posts can be used to secure the mounting bracket to the base 152. Other fastening mechanisms can be used as well. The mounting bracket is dimensioned so as to be hidden in the bottom portion 114 of the body 102.

Roughly in the middle region of the support face are bilaterally arranged slotted supports. The proximal ends of each pedal lever 302a, 302b comprise a cylindrical protrusion (such as a peg, dowel, pin, and the like) that is inserted into the one of the slotted supports. The cylindrical protrusions are free to rotate within the slotted supports. With the pedal levers 302a, 302b mounted on the front rocker arm 306a at the distal ends 320a, 320b, and the slotted supports at the proximal ends 318a, 318b, the pedal levers 302a, 302b are suspended off the floor and the distal ends 320a, 320b is capable of moving up and down while the proximal ends 318a, 318b remains fixed in place.

The center of the mounting bracket comprises a channel through the top side and along the length of the mounting bracket. The channel provides space to receive the axle 310 when the front and back rocker arms 306a, 306b are mounted on the mounting bracket with the axle 310. The channel allows the axle 310 to rotate freely about its longitudinal axis.

In some embodiments, the actuator system 300 may comprise an automated sensor or control (not shown) that detects a signal nearby to automatically open and close the lid 202 and clamping mechanism 204. By way of example only, the sensor or control may be operatively connected to gears and an electric motor that would rotate the axle 310, move the lift arms 206, 208, move the clamp arms 252a, 252b, move the clamp actuators 224, 226, move the lid 202, or move some other component controlling the closing system 200. The sensor may be a motion detector, heat sensor, touch sensor, a push button, and the like. This embodiment may be battery-operated or plugged into the wall socket.

Carrier

In some embodiments, the receptacle 100 may further comprise a carrier 400. As shown in FIG. 20, the carrier 400 comprises a tray 356 and two opposing walls 358, 360 operatively connected to the tray 356. The two opposing walls 358, 360, each defines a bottom edge 362, 363 at which each is connected to the tray 356, and a top edge 364, 365, adjacent to each of which is an opening 366, 368, respectively. The openings 366, 368 are preferably bean-shaped, for two hands to hold the carrier 400. The opposing walls 358, 360 may be integrally formed with the tray 356 or attached to the tray 356. In the preferred embodiment, the opposing walls have holes 359. In some embodiments, the opposing walls 358, 360 are movably connected to the tray 356 with a hinge. In some embodiments, the opposing walls 358, 360 are connected to the tray 356 via a living hinge. The tray 356 may have raised walls 357 surrounding the tray 356 so as to provide a depth to the tray 356.

When used for composting, the carrier 400 may be used to hold compost tea, also known as leachate, which is essentially liquid run-off of decomposing compost that provides good nutrient for plants. If a user wishes to obtain the compost tea, he or she could purposefully leak the compost tea from the bottom of bag with compost in it into the tray 356 of the carrier 400. Using the carrier 400 provides a mess-free alternative to obtaining compost tea from a compost-filled bag in the receptacle. Even for any other types of trash, the carrier allows for an easy clean up if there is any leaking of waste from the bag or liner. In some embodiments, the base 152 may comprise guide posts 155 (see FIG. 3) for the tray 356 of the carrier 400.

14

In use, the carrier 400 sits inside the body 102 of the receptacle on top of the base 152. A bag is placed inside the body 102 on top of the tray 356. The perimeter edge defining the opening of the bag is folded over the clamp bars 258a, 258b. In some embodiments, adhesives, tacky silicone, and the like, on the clamp bars 258a, 258b may be used to hold the bag against the clamp bars 258a, 258b. In some embodiments, clips 280a, 280b, 282a, 282b are used to secure the bags. Any combination of these can also be used.

To open the receptacle 100, the user steps on the first pedal lever, for example, the right pedal lever 302b. Since the right pedal lever 302b is resting on the right side of the support arm 328a of the front rocker arm 306a, this causes the right terminal end 330a of the support arm 328a to move in a downward direction. Since the right side of the support arm 328a is attached to the socket 326a of the front rocker arm 306a, the socket 326a of the front rocker arm 306a rotates within the front bushing 350 in the clockwise direction. This causes the left terminal end 332a of the support arm 328a of the front rocker arm 306a to move upwardly.

Simultaneously, rotation of the socket 326a of the front rocker arm 306a causes the axle 310 to rotate in the same direction. Rotation of the axle 310 causes the back rocker arm 306b to rotate in the same direction causing left terminal end 332b of the support arm 328b of the back rocker arm 306b to lift upwards.

The upward movement of the left terminal ends 332a, 332b of the support arms 328a, 328b causes the front and back lift arms 206, 208 to move upwardly simultaneously. The lift arms 206, 208, being attached to their respective clamp actuators 224, 226, move the clamp actuators 224, 226 in an upward direction. Upward movement of the clamp actuators 224, 226 causes the central pegs 266a, 266b on the front arms 254a, 254b and central pegs 276a, 276b on the back arms 256a, 256b to move in an upward direction. Since the lateral pegs 264a, 264b on the front arms 254a, 254b are fixed against the front wall 104 from translational movement, and the lateral pegs 274a, 274b on the back arms 256a, 256b are fixed against the back wall 106 from translational movement, the clamp arms 252a, 252b rotate about the lateral pegs 264a, 264b, 274a, 274b. The right clamp bar 258b rotates in the clockwise and the left clamp bar 258a rotates in a counter-clockwise direction about the lateral pegs 264a, 264b, 274a, 274b. This causes the clamp bars 258a, 258b to move away from each other, thereby opening the bag placed inside.

Simultaneously, the extension arm 210 on the back lift arm 208 also moves in an upward direction. Since the extension arm 210 is connected to or abuts against the lid 202, the lid 202 opens at the same time the clamp arms 252a, 252b move apart. The user can now discard any waste into the bag. Pressing on the opposite pedal (left pedal 302a), moves each component in reverse, thereby simultaneously closing the clamp arms 252a, 252b and the lid 202. When the user is ready to discard the waste, the user can open the receptacle 100 as described above. The user can then grab the handles of the carrier and carry the waste to the desired location for proper disposal.

The waste receptacle 100, and any components thereof, can generally be made using materials such as plastic, metal, wood, or any combination thereof. For example, injection molding techniques may be used to fabricate various components of the invention.

The foregoing description of the preferred embodiment of the invention has been presented for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Many modifications and variations are possible in light of the above

15

teaching. It is intended that the scope of the invention not be limited by this detailed description, but by the claims and the equivalents to the claims appended hereto.

What is claimed is:

1. A receptacle, comprising:

a. a body, the body comprising a front wall, a back wall opposite the front wall, a right wall adjacent to the front and back walls, a left wall opposite the right wall and adjacent to the front and back walls, and a base adjacent to the front, back, right, and left walls, wherein the body defines a cavity, wherein the front wall further comprises a pair of cutouts at a bottom portion of the body below the base;

b. an actuating system, comprising:

i. a pair of pedal levers, a first pedal lever insertable through a first cutout and a second pedal lever insertable through a second cutout, each pedal lever attached to the base;

ii. a front rocker arm adjacent to the front wall, the front rocker arm operatively connected to the pair of pedal levers;

iii. a back rocker arm adjacent to the back wall; and

iv. an axle connecting the front and back rocker arms, such that movement of the front rocker arm causes movement of the back rocker arm; and

c. a closing system operatively connected to the actuating system, the closing system comprising:

i. a clamping mechanism comprising a pair of clamp arms operable to move laterally away from each other, and medially toward each other, wherein when the clamp arms are moved laterally away from each other the closing system is in an open configuration, and when the clamp arms abut each other a tight seal is created between the clamp arms and the closing system is in a closed configuration, wherein the clamping mechanism comprises a front clamp actuator and a back clamp actuator, the front and back clamp actuators operatively connected to the clamp arms, such that movement of the clamp actuators in a first direction causes the clamp arms to move into the open configuration, and movement of the clamp actuators in a second direction causes the clamp arms to move into the closed configuration, wherein each clamp arm comprises a front arm, a back arm opposite the front arm, and a clamp bar therebetween operatively connected to the front and back arms, the front and back arms each having a base with an upwardly projecting connector arm, the connector arms connected to their respective clamp bars, thereby positioning the bases below their respective clamp bars, the bases each comprising a central peg and a lateral peg at opposite ends, the central pegs positioned inwardly towards a centerline of their respective front and back walls, the lateral pegs positioned laterally closer to the left or right walls, respectively, wherein the front arms are attached to the front wall via their lateral pegs in a rotatable manner, and wherein the back arms are attached to the back wall via their lateral pegs in a rotatable manner, wherein each clamp bar comprises a plurality of fingers arranged in an alternating fashion relative to each other such that when the clamp bars are in the closed configuration the plurality of fingers from a first clamp bar interlocks with the plurality of fingers of a second clamp bar,

ii. a front lift arm having a bottom end connected to the front rocker arm and a top end connected to the front clamp actuator,

16

iii. a back lift arm having a bottom end connected to the back rocker arm and a top end connected to the back clamp actuator; and

iv. an extension arm having a bottom end connected to the back clamp actuator and a top end opposite the bottom end of the extension arm, wherein movement of the pedal levers causes movement of the front and back rocker arms, which causes movement of the front lift arm, back lift arm, and extension arm, which causes movement of the clamp arms between the open and the closed configuration.

2. The receptacle of claim 1, wherein a handle is attached to the top end of the extension arm to operate in conjunction with the clamping mechanism.

3. The receptacle of claim 1, further comprising a lid attached to the top end of the extension arm to open and close with the clamping mechanism.

4. A receptacle, comprising:

a. a body;

b. a closing system, the closing system comprising a clamping mechanism comprising a pair of clamp arms operable to move laterally away from each other, and medially toward each other, wherein when the clamp arms are moved laterally away from each other the closing system is in an open configuration, and when the clamp arms abut each other to create a tight seal between the clamp arms, the closing system is in a closed configuration;

c. an actuating system to open and close the pair of clamp arms; wherein the actuating system comprises:

i. a pair of pedal levers, a first pedal lever inserted through a first cutout and a second pedal lever inserted through a second cutout, each pedal lever attached to the base;

ii. a front rocker arm adjacent to the front wall, the front rocker arm operatively connected to the pair of pedal levers;

iii. a back rocker arm adjacent to the back wall; and

iv. an axle connecting the front and back rocker arms, such that movement of the front rocker arm causes movement of the back rocker arm; and

d. a carrier comprising a tray and handles, the tray configured to be housed inside the body.

5. The receptacle of claim 4, wherein the clamping mechanism comprises a front clamp actuator and a back clamp actuator, the front and back clamp actuators operatively connected to the clamp arms, such that movement of the clamp actuators in a first direction causes the clamp arms to move into the open configuration, and movement of the clamp actuators in a second direction causes the clamp arms to move into the closed configuration.

6. The receptacle of claim 5, wherein each clamp arm comprises a front arm, a back arm opposite the front arm, and a clamp bar therebetween operatively connected to the front and back arms, the front and back arms each having a base with an upwardly projecting connector arm, the connector arms connected to their respective clamp bars, thereby positioning the bases below their respective clamp bars, the bases each comprising a central peg and a lateral peg at opposite ends, the lateral pegs positioned laterally relative to their respective central pegs, wherein the front arms are attached to the body via their lateral pegs in a rotatable manner, wherein the back arms are attached to the body via their lateral pegs in a rotatable manner, and wherein the front clamp actuator and the back clamp actuator are connected to the clamp arms via the central pegs of the front and back arms, respectively.

17

7. The receptacle of claim 6, wherein each clamp bar comprises a plurality of fingers arranged in an alternating fashion relative to each other such that when the clamp bars are in the closed configuration the plurality of fingers from a first clamp bar interlocks with the plurality of fingers of a second clamp bar.

8. The receptacle of claim 4, wherein the body comprises a front wall, a back wall opposite the front wall, a right wall adjacent to the front and back walls, a left wall opposite the right wall and adjacent to the front and back walls, and a base adjacent to the front, back, right, and left walls, wherein the body defines a cavity, wherein the front wall further comprises the first and second cutouts at a bottom portion of the body below the base.

9. The receptacle of claim 4, further comprising:

- a. a front lift arm having a bottom end connected to the front rocker arm and a top end connected to the clamping mechanism;
- b. a back lift arm having a bottom end connected the back rocker arm and a top end connected to the clamping mechanism; and
- c. an extension arm having a bottom end connected to the clamping mechanism and a top end opposite the bottom end of the extension arm, wherein movement of the pedal levers causes movement of the front and back rocker arms, which causes movement of the front lift arm, back lift arm, and extension arm, which causes movement of the clamping mechanism between the open and the closed configuration.

10. The receptacle of claim 9, wherein the top end of the extension arm is connectable to a structure selected from the group consisting of a lid and a handle.

11. The receptacle of claim 4, wherein the carrier further comprises two opposing walls comprising a plurality of holes.

12. A receptacle, comprising:

- a. a body, comprising a front wall, a back wall opposite the front wall, a right wall adjacent to the front and back walls, a left wall opposite the right wall and adjacent to the front and back walls, and a base adjacent to the front, back, right, and left walls, wherein the body defines a cavity;
- b. a closing system connected to the body, the closing system comprising a clamping mechanism, the clamping mechanism comprising a pair of clamp arms operable to move laterally away from each other in an open configuration, and medially toward each other in a closed configuration, and a clamp actuator the clamp actuator operatively connected to the clamp arms, such that movement of the clamp actuator in a first direction causes the clamp arms to move into the open configuration, and movement of the clamp actuator in a second direction causes the clamp arms to move into the closed configuration; and
- c. an actuating mechanism operatively connected to the closing system to open and close the clamping mechanism; wherein the actuating mechanism further comprises:

18

- i. a front rocker arm adjacent to the front wall and operatively connected to the pair of pedals;
- ii. a back rocker arm adjacent to the back wall; and
- iii. an axle connecting the front and back rocker arms, such that movement of the front rocker arm causes movement of the back rocker arm.

13. The receptacle of claim 12, wherein each clamp arm comprises a front arm, a back arm opposite the front arm, and a clamp bar therebetween operatively connected to the front and back arms, the front and back arms each having a base with an upwardly projecting connector arm, the connector arms connected to their respective clamp bars, thereby positioning the bases below their respective clamp bars, the bases each comprising a central peg and a lateral peg at opposite ends, the central pegs positioned inwardly towards a centerline of their respective front and back walls, the lateral pegs positioned laterally relative to their respective central pegs, wherein the front arms are attached to the front wall via their lateral pegs in a rotatable manner, and wherein the back arms are attached to the back wall via their lateral pegs in a rotatable manner.

14. The receptacle of claim 13, wherein each clamp bar comprises a plurality of fingers arranged in an alternating fashion relative to each other such that when the clamp bars are in the closed configuration the plurality of fingers from a first clamp bar interlocks with the plurality of fingers of a second clamp bar.

15. The receptacle of claim 12, further comprising a hand actuator attached to the body in a moveable manner having a raised configuration and a lowered configuration, the hand actuator operatively connected to the clamping mechanism such that in the raised configuration the clamping mechanism is in the open configuration and in the lowered configuration the clamping mechanism is in the closed configuration.

16. The receptacle of claim 12, wherein the actuating mechanism comprises a pair of pedals attached to the base and operatively connected to the clamping mechanism, wherein depression of a first pedal places the clamping mechanism in the open configuration, and depression of a second pedal places the clamping mechanism in the closed configuration.

17. The receptacle of claim 12, further comprising:

- a. a front lift arm having a bottom end connected to the front rocker arm and a top end connected to the clamping mechanism;
- b. a back lift arm having a bottom end connected to the back rocker arm and a top end connected to the clamping mechanism; and
- c. an extension arm having a bottom end connected to the clamping mechanism and a top end opposite the bottom end.

18. The receptacle of claim 17, wherein the extension arm is configured to attach to a structure selected from the group consisting of a handle actuator and a lid.

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